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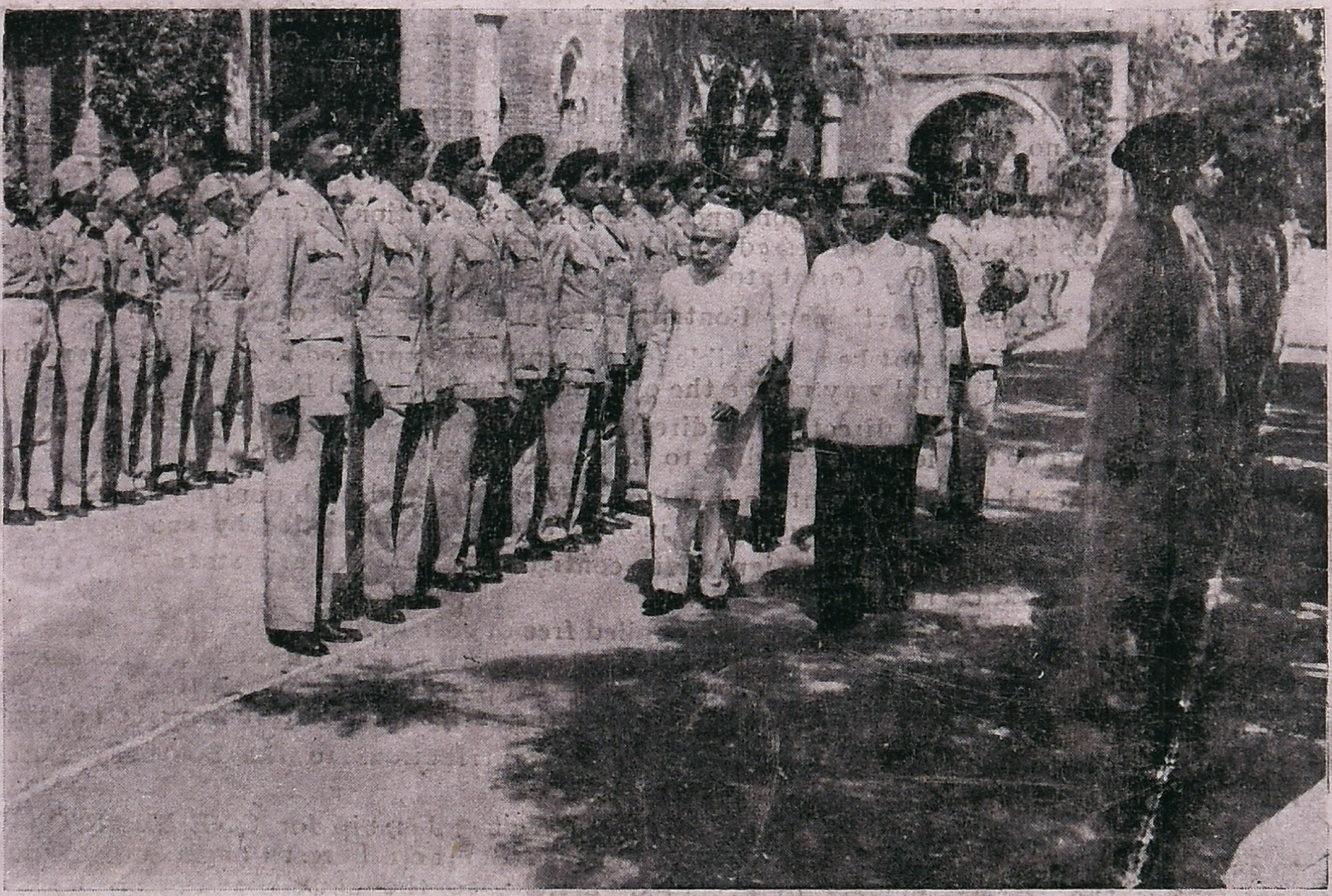
# The Southern Forest Rangers College Magazine



OCTOBER 1957 No. 4

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Vol.33, No-4, 1957

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# The Southern Forest Rangers College Magazine

Quarterly Journal of Forestry, Shikar and Travel

The Magazine now forms a section of the Southern Forest Rangers College and Regional Foresters School Association. The Editorial Board has been reconstituted and the Management Rules revised in terms of the Rules of the Association.


## EDITORIAL BOARD

*Chairman :* — Shri Dr. D. A. Rama Rao, B. Sc., A.I.I.Sc., M. F. (Wash) Ph. D., Principal

*Editor :* — Shri S. V. Venkataramanan, B. A., M.F.S., Instructor

*Joint Editor :* — Shri T. R. Somasundaram, B. Sc. Curator

*Student Editors :* — Shri C. K. Karunakaran, B. Sc.
„ P. Srinivasa Reddy, B. Sc.

*Student Secretaries :* — Shri M. K Divakaran Nair
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*Junior Ranger's Class :* — „ P. A. Abdul Bari, B. Sc.

*Regional Foresters School :* „ P. Satyanarayana


**MANAGEMENT RULES :**

1. **Life Membership :** Rs. 200/- or more.

2. **Subscriptions :** Subscriptions shall be for a year from July to June, as follows :—

   For Officers drawing a Salary Rs. 100/- and above Rs 6/- per annum.

   „ Less than Rs. 100/-, Rs. 4/- per annum.

The Editorial Board is authorised to revise the rate of subscription from time to time. The subscription should be sent in advance or paid by Banker's Order system to the Joint Editor, Southern Forest Rangers College Magazine, R. S. Puram P.O., Coimbatore

Ordinarily, the Editor will inform the members three months before the expiry of the subscription. If no intimation is received by him regarding continuation or otherwise of the membership, the July issue will be sent by V. P. P.

3. **Correspondence :** Correspondence regarding subscription, advertisement and other financial matters should be addressed to the Editor, Southern Forest Rangers College Magazine, R. S. Puram P. O., Coimbatore.

4. **Contributions of articles :** Contributions should be sent to the Editor.

5. The Editor will not be responsible for the opinions expressed in articles other than the Editorial. The Editorial may not be the opinion of the Editorial Board.

6. Articles connected directly or indirectly with forestry will be accepted. Articles on other subjects can be considered according to their utility and the space available.

Articles should be legibly written in ink or preferably typed with double spacing on one side of foolscap page, leaving a margin of $1\frac{1}{2}$ inches, and be **accompanied by summaries.**

Contributors are requested to sign their contributions and clearly state their name, place of residence and occupation.

7. **Reprints :** Contributors can be supplied free of cost SIX reprints of their articles together with any illustrations, provided the articles are two pages or more in length and the Editor is informed. Contributors desiring extra copies should intimate the Editor the number of copies required. They will be charged the actual expenditure incurred on them.

8. **Payment :** No payment will be made for contributions to the Southern Forest Rangers College Magazine.

9. **Free Membership :** The Magazine offers free membership for ONE YEAR ONLY to any contributor, other than the students of the Southern Forest Rangers College, who contributes the largest number of accepted articles to the Southern Forest Rangers College Magazine.

10. **Prizes :** The following prizes will be awarded annually to the students of the Southern Forest Rangers College:—

(a) for the best article, adjudged by a special committee constituted for this purpose, published in the Magazine.

(b) for the largest number of articles published in the Magazine.

The special Committee shall compose of :

(i) The President, F. R. I & Colleges, Dehra Dun, (ii) The Principal, Southern Forest Rangers College, Coimbatore and (iii) The Editor, Southern Forest Rangers College Magazine.

# ERRATA

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THE

# Southern Forest Rangers College Magazine

Published Quarterly

Vol. 33 OCTOBER 1957 No. 4

N B:— Contributors are requested to send in their contributions written legibly in ink on one side of the paper only or in type-script.

## Editorial Notes

**Convocation:** The Annual Convocation of the College and the Regional Foresters School was held on the 29th June 1957. The Governor of Kerala, Dr. B. Ramakrishna Rao, delivered the Convocation Address. The Governor's address and other proceedings as also the list of successful students and prize winners are published elsewhere in this issue. We wish the outgoing students all success in their career. We hope and trust that they will cherish memories of their days in the College and keep contact with it as much as they can. We have no doubt that they will continue their association with this Magazine and contribute freely to its future material.

**Vana Mahotsava:** The Annual Vana Mahotsava was inaugurated on the 30th June 1957 by Sri K. L. Aggarwal, President, Forest Research Institute and Colleges. Sri V. S. Krishnaswamy, Chief Conservator of Forests, Madras, Sri C. A. R. Bhadran, Deputy Inspector-General of Forests, Govt. of India, Sarvasri T. Jeyadev, K. A. Bhoja Shetty and K. Andiappan, Conservators of Forests, Madras, l r. K. Kadambi, Conservator of Forests, Mysore, Sri Mohamed Hussain, District Forest Officer, Coimbatore South, members of the College staff and their families and students participated in the function, each planting a seedling of *Eucalyptus* and other species.

**Independence Day:** The celebrations this year were organized on an appropriate scale befitting the 10th anniversary of our independence and the Centinery of the first freedom struggle of 1857. The College buildings were tastefully decorated and the College tower impressively illuminated with coloured lights. In the morning on the 15th of August all the members of the College staff and their families, students and other residents of the College Estate assembled in front of the College. Dr. D. A. Rama Rao, our Principal, hoisted the National Flag. Sri S. V. Venkataramanan then spoke on the first war of Indian independence, Tatia Tope, Rani of Jhansi and other heroes who participated in it and the significance of this great struggle. He took the occasion to point out that great heroes of the South—Katta Bomman and Oomathurai of Tirunelveli district in Madras, Hyder and Tippu in Mysore and Velu Tampi in Travancore—had started the freedom war and died fighting over half a century before. Dr. Rama Rao, in his concluding remarks, exhorted the gathering, particularly the students, to live up to the ideals of the great architects of our freedom, eschewing parochialism and fissiparous tendencies, which had been the cause of our downfall in the past, and ever striving for the preservation of our hard-won freedom and the promotion of the well-being and development of our nation. The function concluded with the distribution of sweets and fruits and the singing of the National Anthem. In the evening a programme of music, fancy dress, dance and drama, put up by students in their Club, provided entertainment of a high order to the residents of the Estate and guests who had gathered in large numbers.

**Mysore Governor's Visit:** His Highness Sri Jaya Chamaraja Wodeyar, Governor of Mysore, honoured us by his visit to the College Museum on the 3rd September 1957. He was received with a Guard of Honour by the students and shown round the Museum by our Principal. Besides the magnificent present of a Bison trophy made by His Highness, the Museum has been enriched by many new specimens of natural history and wild life interest. The distinguished visitor was pleased to record as follows in the Visitor's Book. "I am glad I have had another opportunity of visiting this excellent museum again." As the Rajpramukh of Mysore, he had last visited the Museum in 1951.

**Promotion**: Dr. D. A. Rama Rao, Principal, Southern Forest Rangers College has been promoted as Conervator of Forests, Mysore State, with effect from 1—11—1956. Our hearty congratulations to him.

**Retirement**: Sri. K. L. Aggarwal, President of the Forest Research Institute and Colleges, Dehra Dun and Coimbatore, retired on the 15th August 1957 after a distinguished career in the Punjab Forest Department and in the Forest Research Institute and Colleges. He was associated with the Colleges earlier as the Director of Forest Education from November 1949 till February 1953 and lately as the President, Forest Research Institute and Colleges since August 1954. A thorough and tireless worker himself, Sri Aggarwal encouraged sincere and hard work in others. We wish him a long and happy retired life.

**Our New President**: Shri R. N. Datta, I.F.S., till recently the Chief Conservator of Forests, Madhya Pradesh, took over as the President, Forest Research Institute and Colleges, Dehra Dun, on the 3rd September 1957. Our respectful greetings to him. He brings with him a wealth of long and varied experience and a reputation for high integrity and efficient administration. The Institute and Colleges are assured of a very promising future under him.

**Editorial Board**: With the integration of the different extra-curricular activities under one Association, the College Magazine has become a section of the Association and the Editorial Board has been reconstituted under its rules. The responsibilities of running this Magazine, which had been so ably shouldered by Sri K. K. Nair as its erstwhile Vice-President, have devolved on the writer under a changed apellation. We are indebted to Sri Nair and the out-going student members of the Editorial Board for their unremitting work on the Magazine. Sri T. R. Somasundaram who has done invaluable work for the Magazine these many years will continue as the Business Superintendent.

**College Staff**: Sri V. M. Narasimhan who has been with us for over 4 years as Instructor of the Regional Foresters School has reverted to the Madras Forest Department as Assistant Conservator of Forests.

Sri Narasimhan is a man of parts, and we have no doubt that he will be as successful in the field of administration as he was in the College. He is succeeded by Sri T. K. Rajagopalan who has been in the college from October 1952 as an Asst. Intructor.

Sri M. P. Narayana Menon, our Head Clerk, who has been with us since the College reopened in 1945, has gone on leave from 8—7—1957 preparatory to retirement. We wish him a long and happy retired life.

With the opening of one more division in the Junior class, Sri V. Govinda Menon, a senior forest officer from Kerala and a former Instructor of the College, has joined us. To him and Sarvasri T. S. Venkatanarayana of Mysore and M. Venkata Reddi of Andhra Pradesh, who have recently joined as Assistant Instructors, we extend a most hearty welcome.

**Students:** 75 Ranger Students and 20 Foresters have joined the new courses which began on the 1st July 1957. We welcome them. We trust that they will evince due interest in the Magazine from the beginning and that, with the added strength, students will contribute to the pages of this Magazine to a greater extent than in the past.

—*S. V. V.*

Mr. P. D. Stracey, Director of Forest Education, presenting his report

Dr. Ramakaishna Ra... ...entland Shield to the best

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Photo by: Shri T. R. S.

The Governor awarding the "Mohamed Khan" Rolling Cup to the best student from Madras and Mysore

Photo by: Shri P. N Sundaraswami.

The Governor, Dr Ramakrishna Rao, and other invitees at the Principal's lunch

Photo by: Shri T. R. S.

# Proceedings of the Convocation of the Southern Forest Rangers College and the Regional Foresters School, Coimbatore

The Convocation was held at 10-00 hrs. on Saturday the 29th June 1957. Dr. B. Ramakrishna Rao, Governor of Kerala, presided and delivered the Convocation Address amidst a distinguished gathering which included Sri K. L. Aggarwal, I. F. S., President, Forest Research Institute and Colleges, Dehra Dun, Sri. V. S. Krishnaswamy, I. F. S., Chief Conservator of Forests, Madras, Sri P. D. Stracey, I. F. S., Director of Forest Education, Dehra Dun, Sri C. A. R. Bhadran, I. F. S., Deputy Inspector-General to the Government of India, Dr. K. Kadambi, Conservator of Forests Mysore, Sarvasri T. Jeyadev, K. A. Bhoja Shetty and K. Andiappan, Conservators of Forests, Madras, Sri G. D. Naidu, the pioneer industrialist of Coimbatore, Sri Haji Khan Saheb, S. M. Mohamed Khan of Satyamangalam and Sri K. M. K. Kurup retired District and Sessions Judge.

On the Governor's arrival accompanied by his A. D. C. and the Collector of Coimbatore, he was received by Sri K. L. Aggarwal, Sri P. D. Stracey and Dr. D. A. Rama Rao, the Principal of the College. After inspecting the Guard of Honour presented by the students of the College, he was introduced by Sri Aggarwal to the officers of the College. The Convocation Procession was led by the Director of Forest Education followed by the Governor, the President, Forest Research Institute and Colleges, the Principal of the College and others.

**Shri K. L. Aggarwal,** I. F. S., **President, Forest Research Institute and Colleges, Dehra Dun, welcoming the gathering said:**

Sri Ramakrishna Rao, Ladies and Gentlemen,

I have very great pleasure in extending to all the ladies and gentlemen present here to-day a most cordial welcome and to you, Sir, our particular thanks for your agreeing to preside at this function and to deliver the Convocation Address. This is the second time that

you have consented to address this occasion by presiding over it, the first time being in 1952, and we are doubly grateful that you have been able to spare the time from your onerous duties in the State of which you are the Governor to come to us.

The Southern Forest Rangers College forms not an insignificant part of the Forest Research Institute and Colleges under the Government of India. With the considerable expansion in demands for training in forestry, the classes are being doubled with effect from 1st July 1957 in spite of difficulties of accommodation and staff. Of recent years, the training being imparted at the Forest Colleges has been progressively intensified and attempts have been made of streamlining the methods employed. This is necessary both in order to meet the changes in India and also because of the need to make the most of the material which we receive at the Colleges and to cope with the shortage of staff and other difficulties experienced. Like everything else, forest education has progressed and it is necessary to search for new and suitable methods of instruction while extending the courses of instruction. Unfortunately, the scope for effecting changes in practical instruction on tours in the forests of India is not the same, as there are certain limitations of touring, of expenses and of time in visiting all the forests we would like to visit.

The emphasis in training is now more on finding solutions on ecological lines of the problems of our forests, such as the regeneration of the main types so as to ensure their being perpetuated and improved; the solution of the problem of grazing and its heavy pressure on our forest vegetation and the two other biotic factors of the tribal person and the wild life who live in or near our forests; the solution of the problems of afforestation and rehabilitation of our degraded forests to serve the people's needs; the solution of the problems of the greater utilisation of our various forest products and the increased exploitation of the known products; and the solution of the problem of the greater protection of our soil, of our hillsides and of our watersheds.

A forest officer, and particularly the forest ranger, is the custodian and guardian of the forests and the person who ensures the effective discharge of these functions of the forests. Anything we can do

at these colleges to increase the effectiveness of the training the forester receives and the development of a proper approach to his duties and responsibilities is, therefore, of vital importance to the country as a whole and requires the attention of the authorities immediately concerned.

The Rangers and Foresters going out to-day are but the next in a long line of those who have preceded them, and we are confident that they are fitted to discharge their duties as efficiently as any of those who passed out before them. At the same time, it must be accepted that, in the pressure of day to day life which is the feature of our modern civilisation, the discharge of such an idealistic type of vocation as that of forestry, calls for more than ordinary perseverance and tenacity. Mere technical knowledge is of no avail if there is no moral basis and support to its faithful discharge, and to that extent more than ordinary efforts are being made these days to instil feelings of greater morale and *esprit de corps* among all the members of the forest departments who undergo training at our Colleges. It is for the public to appreciate and reciprocate in the discharge of the delicate duties entrusted to our young foresters to-day.

The vital need of the colleges is adequate and suitable instructor-strength and for this the ranks of the State Forest Departments have to be combed. Certain difficulties, such as those of fitting suitable officers into the staffs of the Colleges without creating dislocations as regards seniority, arise from time to time and these are complicated by the different rates of emoluments enjoyed by officers in the different States in India. It is generally no attraction for officers of the Uttar Pradesh, Punjab and Bengal, for instance, to leave their States for appointments at the colleges. Subject to these difficulties and our efforts to overcome them, the standard of the instructional staff at the Colleges continues to be maintained at the previous levels, generally speaking, though it is becoming difficult to obtain any but comparatively junior men because of the demand for the more senior men in the State parent departments.

The forest colleges and their hostels are being increasingly used for training and demonstrational purposes and our Instructors are being increasingly called upon to conduct courses and to train and

lecture to trainees of other branches of national activities. For instance, the instruction being given to village level workers to and instructors of such village level workers in elementary forestry, and the lectures on soil conservation forestry given to trainees of the soil conservation centres, the talks to probationers of the administrative services and even to Members of Parliament and Legislatures, are becoming almost regular features. In Dehra Dun the great attraction which the Forest Research Institute constitutes has made demands on the hostel accomodation by visiting parties of students and for housing delegates to seminars and symposia. We are very glad to be able to serve the nation by these means even at considerable inconvenience at times to our students and their staff.

In this connection the opening of a Research Centre dealing with (i) Silviculture including Soil Science, (ii) Entomology, and (iii) Botany and Mycology, at Coimbatore is a notable step forward. The plan is to construct buildings to the tune of about Rs. 5,30,000/- during the Second Five Year Plan period and to have research branches on Silviculture (including Soil Science), Entomology, Botany and Mycology. These Research Branches will be under the administrative charge of the senior-most officer of the College and will be part of the Forest Research Institute at Dehra Dun.

In wishing all the out-going students good fortune on the eve of their launching forth on their careers, I look to them for an assurance that they will justify the endeavours of the staff at this College during their training period. They have got difficult years ahead but also rewarding and satisfying ones and their motto should always be their College motto, "a sound mind in a sound body".

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**Sri P. D. Stracey, I. F. S., Director of Forest Education, Dehra Dun, reading the annual report for the year 1956 - 57, said :—**

Shri Ramakrishna Rao, Ladies and Gentlemen,

I have the honour to submit the report on the working of the Southern Forest Rangers College and of the Regional Foresters School for the year 1956-57.

During the period under review the strength was 39 students in the Senior and 75 in the Junior Ranger classes and 25 in the

Foresters class. The total number of Rangers trained at this Institution from 1912 to 1957, with a break of 5 years from 1939 to 1945 when the College was closed, now comes to 1070, and from the Foresters School 111, including those passing out today.

**Course of studies:** This has followed the normal routine with the addition of Logging and Wild Life Management as new subjects to the curriculum of the Rangers Course. The course covers lectures and practical work, including touring in selected forest areas of the country, in forestry and allied subjects. Soil Conservation, Land Management, Farm forestry, etc. are given due emphasis. In this connection every attempt is being made to ensure uniform standards of instruction in the two regional colleges, subject to the due emphasis on training localities and on the different species of plants and types of forests encountered.

The working of the House system in which groups of students carry out all field exercises under a House name given after that of a famous Forest Officer of the past, and the spirit of emulation this introduces and the encouragement to weaker student by the stronger, goes a considerable way towards raising the general standard of training. It is not possible, as I have said before, for a single or two Instructors to manage large classes and this method of working is therefore all the more valuable.

**Extra-Curricular lectures:** These followed the same pattern as in previous years and included a course on First Aid for which successful students are awarded certificates of the St. John's Ambulance Association, and lectures on Minor Forest Products by Dr M. N. Ramaswamy, Chief Research Officer, Forest Rosearch Laboratory, Bangalore. 'Maintenance of Cattle' was the subject of lectures by officers of the local Agricultural College. Our thanks are due to all the officers who delivered the lectures on the above subjects. Both the Senior Rangers and the Foresters underwent the usual course of Field Engineering and Weapon training at the H. Q. Corps of Engineers at Bangalore, and our thanks go out to them also.

The work of preparing lantern slides illustrating forest practices in the various parts of the country and the regular showing of such

slides in the lecture classes to supplement lectures has made considerable progress in this College. It is not possible to take the students to all the forests of India, but it should be possible to bring those forests to the class room in the shape of good lantern slides. These, as well as the collection of information on forest techniques in every part of India to form part of the lectures to the trainees, is a vital part of the duties of the Principal and Instructors in the College. The screening of films of educational importance continued to be a feature of the instruction, though it is felt that there is considerable scope for still higher standards in this connection.

**Tours and Field work:** These covered the same ground as in the last year, the forests in the States of Madras, Kerala, Mysore, Andhra Pradesh, Bombay, Madhya Pradesh and Uttar Pradesh being covered by the Rangers while the Foresters confined their touring to Madras, Mysore and Kerala Greater rationalisation of touring to cover such items as Soil Erosion Control and Afforestation, plantations of miscellaneous and soft-wood species, etc. was the aim. Mysore was visited by the Foresters class for the first time this year.

The tour in Madhya Pradesh included a joint meet between the Northern Forest Rangers College and the Southern Forest Rangers College senior classes, and during the 4 days stay at Allapalli, joint excursions with inter-change of Instructors from the two Colleges was followed by a symposium on suitable subjects. The introduction of the competitive element in the symposium and games and contests between the Colleges served to increase interest and improve performances. The Southern Forest Rangers College came out the winners on the joint results of the Meet this year, reversing the result of the previous year, when the Northern College won. The Meet has more than fulfilled the expectations placed on it but it is necessary to play down the competitive element if unhealthy rivalries are not to be encouraged. The contacts between the trainees and the Instructors of the two Colleges, which are situated nearly 2000 miles apart, may be expected to contribute to the building up of a common *esprit de corps* and morale in the Forest Departments of the Indian States as a whole.

**Staff:** An element which plays its part, though not so obviously, in the maintenance of high standard of instruction and training is the

adequacy and contentedness of the staff of the Colleges. At the present moment the Forestry Training Directorate is undergoing a serious shortage of staff and when the doubled classes come into residence at Coimbatore in July and at Dehra Dun in October, the situation will be impossible unless in the meantime as many as 3 Instructors are recruited for the Southern Forest Rangers College and 7for the two Northern Forest Colleges. While it may be possible to lecture somehow to classes of 70 to 75 students, the imparting of adequate practical instruction both in the laboratories and in the field and on tours is quite impossible for a single Instructor, and for that matter for two Instructors, per class of more than 35. It is a matter which requires the most urgent and serious attention if the quality of training imparted is not to deteriorate and if an unbearable strain is not to be placed on the officers manning the Colleges.

The reasons for lack of staff are the general reluctance of States to spare officers and, it must be admitted, to the comparatively unattractive conditions of employment on deputation at the Colleges. A contributory cause is the unsettled conditions which sometime meet the young officer when he comes from his State to take up the appointment of an Instructor or Lecturer for 3 years in the first instance. It is vitally necessary that before an Officer is brought to the Colleges the basis of his appointment should be thoroughly examined and that he should not have any cause for dissatisfaction or complaint when he arrives. A work-man can work only with the tools he is provided with and if the tools are blunted by the unsettled conditions both financially and mentally, the results in the Colleges cannot be satisfactory.

**Health of Students** :— The health of the students, especially with the usual physical training and compulsory games, has remained on the whole good. The current 'flu' epidemic did not appreciably affect the students of the College though a few students could not sit for a paper or two. The Annual Athletic Sports and the Marathon Race over 7 miles were conducted as usual.

Shri Haji Khan Sahib S. M. Mohammad Khan of Satyamangalam has donated a rolling silver cup worth Rs 250/- for awarding to the best student from Madras or Mysore and he has also been kind

enough to donate a sum of Rs. 2650/- for sanitary and lighting installations and improvements to the College Athletic Pavilion, and our grateful thanks are due to him. Shri K. M. K. Kurup, who has consistently taken interest in the physical development of our students, has donated a rolling silver shield for the healthiest student every year, and our greateful thanks are due to him as well.

**The Special Issue of the College Magazine** this year was devoted to "FORESTS AND INDUSTRIES", thus maintaining the welcome traditions of 'special issues', but matter, even though valuable, loses its effect if it is badly presented, and every effort should be made to maintain high standards of presentation, composition and printing.

The usual **Vana Mahotsava** celebration on the 1st July 1956 was inaugurated by Shri S. K. Basu, I. F. S., Chief Conservator of Forests, Madras, and the intensive planting carried out thereafter by students and staff has sustained the practice of the last few years, which has practically transformed the estate grounds. It is an annual feature for each student of the Foresters class to sow and maintain individual lines of plants during the period of their study in the College, for the best of which a prize is awarded. When the thousands of young plants which our students and staff have planted grow up, the estate will form a most valuable forest and park for Coimbatore. The attraction such forests can offer to bird life and minor mammals cannot be over-emphasised in a region of increasing industrialisation, and in this connection the work of the Wild Life Club of the College and Shri V. M. Narasimhan, the Secretary of the Club, in putting up bird-nesting boxes in several places in the estate are very commendable. The estate is practically a sanctuary for birds and animals, though the number of species at present existing is rather limited.

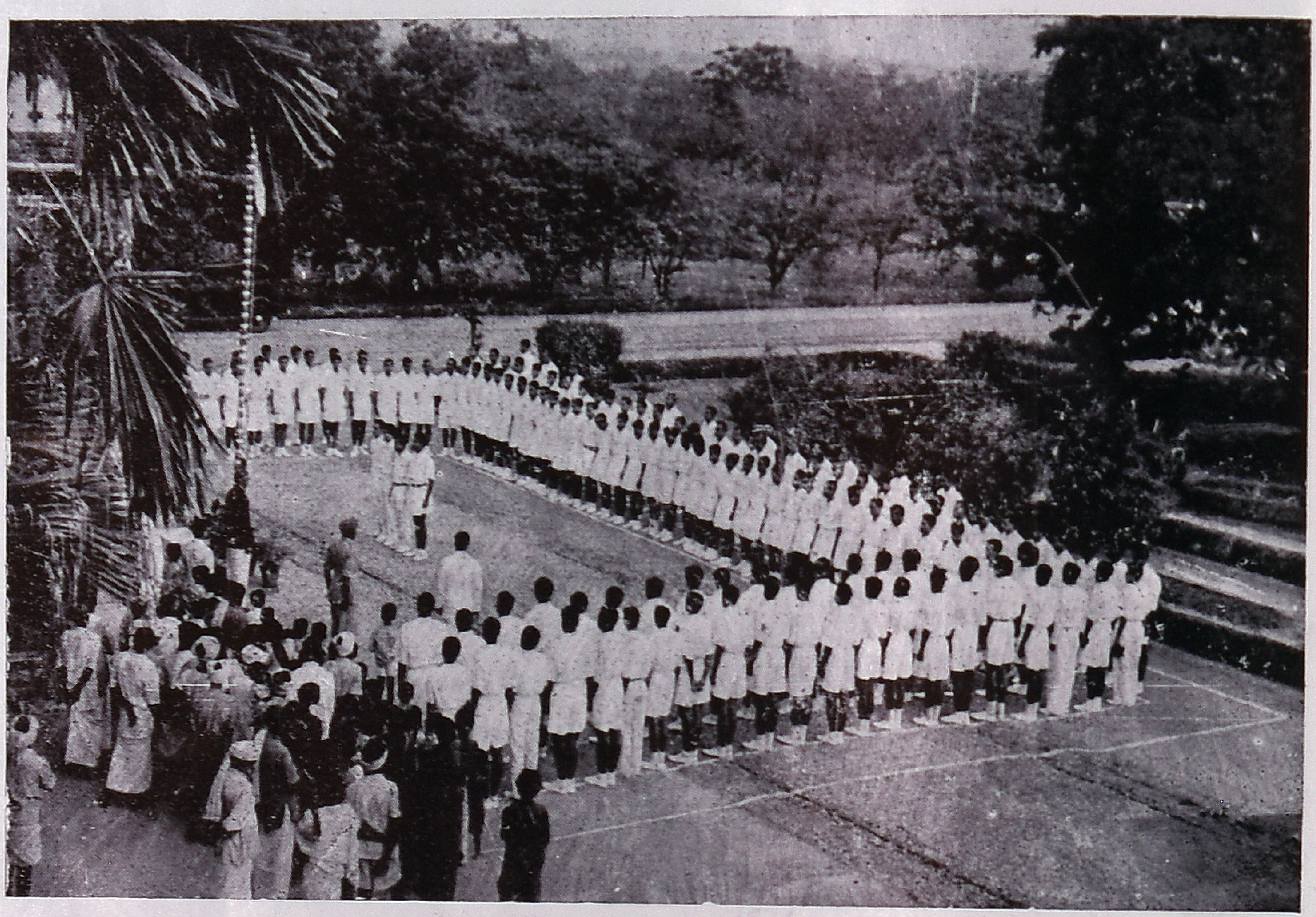
**The Gass Forest Museum** continues to be improved and the latest feature has been the introduction of a number of specimens of natural history and Wild Life interest. The Museum is beginning to show signs that its building is too small for the exhibits required to be housed, but at the same time considerable improvement by overhauling of such exhibits and their rearrangement in the existing available space is called for. We are greateful to H. H. the Rajpramukh of

Mr. Aggarwal inaugurates the Vanamohotsava in the S. F. R. C estate on 30—6—1957.

*Photos by: Shri T. R S.*

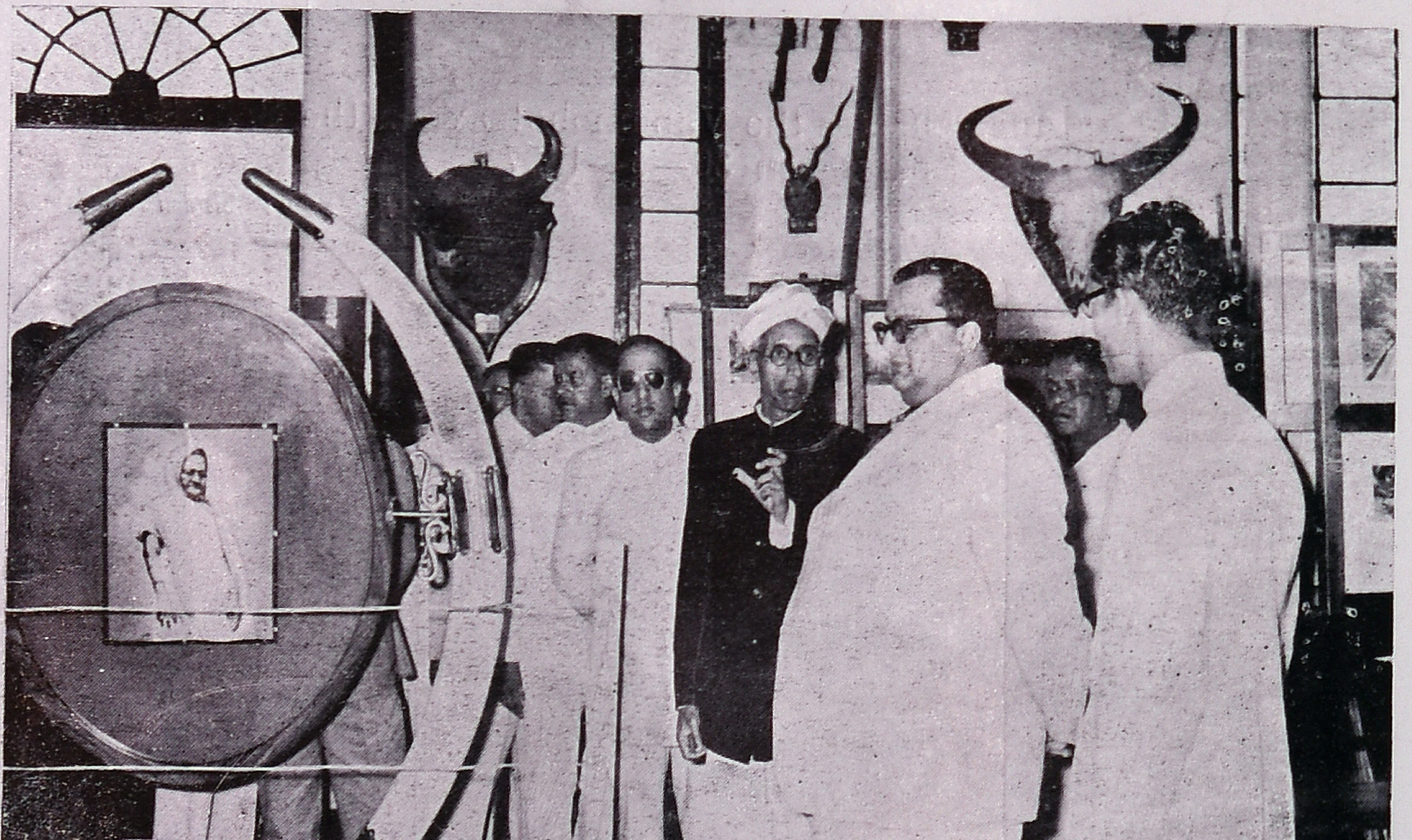
Vanamahotsava on 1—7—'57.
The Principal planting a Eucalyptus seedling.

*Photo by: Shri H S Willie*



The Principal, Dr. Rama Rao, unfuring the National Flag and addressing the gathering of officers, students and others on August 15th, 1957.

*Photos by : Shri T. R. S.*



H. H The Governor of Mysore at the Museum on 3—9—'57.

*Photo by : M/s. The City Camera House.*

Mysore for presenting a full-size mounted bison to the Museum during the year. What is wanted to stimulate interest in Wild Life is models and trophies of the lesser known mammals and of the birds in the country. These, if properly mounted and presented, can have as much appeal as the usual tigers, leopards, etc.

**Administration and Staff:** There have been some additions during the year, Shri S. V. Venkataramanan, a Senior Instructor from the Northern Forest Rangers College, Dehra Dun, coming to the College in July 1956 and Shri C. T. Bopayya coming from the Coorg Forest Department at the same time as Assistant Instructor for the Regional Foresters School. We are shortly to lose the service of Shri V. M. Narasimhan, Instructor-in-charge of the Foresters class, who reverts to his parent State of Madras at the end of his term. Shri Narasimhan has been one of the out-standing Instructors at the College and we will miss him particularly for his knowledge and interest in Wild Life.

Speaking personally, it would be a matter of greater satisfaction if the Director of Forest Education could visit the Southern Forest Rangers College more often than he does at present. It is mainly in the field that he can intervene in and supervise the instruction being imparted to the trainees of the four Colleges in India, and, if his work is not to deteriorate to that of mere routine adminstration and if he is to be responsible for the training imparted, he must be able to visit all classes while they are on tour. This is somewhat difficult, admittedly, because of the simultaneous nature of these tours, but with modern communications such as the aeroplane being available it is not impossible.

**Examinations:** The usual practice of calling upon selected Forest Officers in States to set examination papers continued, and we are grateful to all these officers who took the trouble to undertake this work.

The College was called upon to impart training in Elementary Forestry to the Agricultural Instructors of the Extension Training Centres at the request of the Government of India. A 4 weeks' course

was held and 2 selected members of the Instructional staff conducted the lectures and excursions for the trainees who came from the States of Madhya Pradesh, Andhra Pradesh, Orissa, Mysore, Madras and Kerala.

Before requesting the Principal, Southern Forest Rangers College, to read out the results of the year, I would like to congratulate all those who have passed out, particularly the prize-winners, and to wish the outgoing trainees the best of luck in their future careers. They pass out from this College at a critical time when the country's second Five Year Plan has been launched and when owing to the need for economy in the interests of that plan we are all called upon to exercise caution and restraint. While the administration of the vast forest estate of India cannot be done on a 'penny-wise and, pound-foolish policy' and while there is no such a thing as 'cheap forestry', it behoves every one of them to ensure that the money they are called upon to spend is spent so wisely and the revenue they are expected to realise is augmented to the full, without, however, impairing the capital value of the forest.

I will now ask the Principal, Southern Forest Rangers College to read his report.

**Dr. D. A. Rama Rao,** Principal, then announced the results of the examinations and the prize winners, and the Governor presented the certificates and prizes to the students.

FINAL RESULTS OF THE 1955-57 RANGERS COURSE.

| No | Name of Students. | State. |
|---|---|---|
| *In order of merit—* | | |
| HONOURS— | | |
| | Nil. | |
| HIGHER STANDARD— | | |
| 1 | S. Chinnamani (Central Soil Conservation Board) | |
| 2 | D. S. Doshi ... | Bombay |
| 3 | J. V. Aras ... | Bombay |
| 4 | R. Pratap Bahadhur ... | Andhra Pradesh |
| 5 | H. P. Viswanathan ... | Mysore |

| No. | Name of Students | | State |
|---|---|---|---|
| 6 | G. Sahu | .. | Orissa |
| 7 | J. Mohanty | ... | Orissa |
| 8 | Pruthnath Misra | ... | Orissa |
| 9 | M. N. Rao | ... | Andhra Pradesh |
| 10 | M. Ibrahim Kutty | ... | Kerala |
| 11 | Rajendra Prasad Misra | ... | Madhya Pradesh |
| 12 | A. M. Belliappa | ... | Mysore |
| 13 | B. Krishna Rao | ... | Andhra Pradesh |
| 14 | S. T. Kodachwad | ... | Mysore |
| 15 | G. V. Joshi | ... | Bombay |
| 16 | A. H. Quereshi | .. | Madhya Pradesh |
| 17 | J. V. Sharma | ... | Andhra Pradesh |
| 18 | P. Hemanga Rao | ... | Andhra Pradesh |
| 19 | S. Rajappan Chettiar | ... | Kerala |
| 20 | D. A. L. Warnakula | ... | Ceylon |
| 21 | V. K. Jadhav | ... | Madhya Pradesh |
| 22 | M. K. Chandrasekara Iyer | ... | Kerala |
| 23 | N. Biswal | ... | Orissa |
| 24 | K. G. Bhat | .. | Mysore |
| 25 | K. K. Laxminarasimha Rao | ... | Mysore |
| 26 | Mohamad Rasool | ... | Andhra Pradesh |
| 27 | L. Lohit Reddy | ... | Andhra Pradesh |
| 28 | A. N. Md. Sadiq | ... | Madhya Pradesh |
| 29 | A. K. Rajhans | ... | Bombay |
| 30 | M. A. Kodkani | ... | Bombay |
| 31 | K. B. Subhani | ... | Andhra Pradesh |
| 32 | V. Venkat Reddy | ... | Andhra Pradesh |
| 33 | R. D. Sankarappa | ... | Andhra Pradesh |
| 34 | Y. C. Chathurvedhi | ... | Madhya Pradesh |
| 35 | K. V, Appa Rao | ... | Andhra Pradesh |
| 36 | J. Bhaskaran | .. | Kerala |
| 37 | M. M. Kumtakar | ... | Bombay |
| 38 | T. Sebamalai | ... | Ceylon |
| 39 | S. K. Cumarasingam | ... | Ceylon |

## FINAL RESULTS OF THE 1956-57 COURSE OF THE REGIONAL FORESTERS SCHOOL.

| No. | Name of Students | | State |
|---|---|---|---|
| *In order of merit—* | | | |
| HONOURS— | | | |
| Nil | | | |
| HIGHER STANDARD— | | | |
| 1 | A. Krishnan | ... | Madras |
| 2 | K. C. Subbiah | ... | Mysore |
| 3 | V. A. Kunchumeeran | ... | Kerala |
| 4 | C. E. Rappai | ... | Kerala |
| 5 | Benjamin Ekka | ... | Andamans |
| 6 | O. K. Bhaskaran | ... | Kerala |
| 7 | K. P. Achaiah | .. | Andamans |
| 8 | C. Dhurvasulu Naidu | ... | Madras |
| 9 | K. V. Lakshmipathi Rao | ... | Andhra Pradesh |
| 10 | P. Ponnurangam | ... | Madras |
| 11 | V. Anki Reddy | | Andhra Pradesh |
| 12 | S. J. Sundararaj | ... | Kerala |
| 13 | K Muthuperumal Pillai | | Kerala |
| 14 | M. K. Poonacha | ... | Andamans |
| 15 { | V. V. Porinchu | | Kerala |
| | P. V. Madhava Varier | ... | Kerala |
| 17 | M. P. Zachariah | ... | Kerala |
| 18 | K. C. Mathew | ... | Kerala |
| 19 | P. Laxminarayana Reddy | ... | Andhra Pradesh |
| 20 | M. C. Subbanna | ... | Andhra Pradesh |
| 21 | M. V. Subbiah | ... | Madras |
| 22 | M. Hanumantha Rao | ... | Andhra Pradesh |
| 23 | L. K. Narasimhan | ... | Madras |
| 24 | K. A. Doraiswamy | ... | Madras |
| LOWER STANDARD— | | | |
| 25 | S. Kannappan | ... | Madras |

## PRIZES AWARDED TO THE 1955—57 RANGERS COURSE

| Serial No. | Name of Prize | Name of Prize winner | State |
|---|---|---|---|
| 1 | THE CAMPBELL WALKER PRIZE—for *Forestry* ... | J. V. Aras | Bombay |
| 2 | THE BRAZIER PRIZE—for the *Best Outdoor Ranger* ... | R. Pratap Bahadhur | Andhra Pradesh |
| 3 | THE LODGE PRIZE—for *Forest Engineering* ... ... | D. S Doshi | Bombay |
| 4 | COLLEGE SILVER MEDAL—for *Botany* ... ... | S. Chinnamani | Central Soil Conservation Board |
| 5 | COLLEGE SILVER MEDAL—for *Forest Utilisation* ... | S. Chinnamani | Central Soil Conservation Board |
| 6 | COLLEGE SILVER MEDAL—for *Range Administration* ... | J. Mohanty | Orissa. |

## PRIZES AWARDED TO THE 1956—57 FORESTERS COURSE

| Serial No. | Name of Prize | Name of Prize winner | State |
|---|---|---|---|
| 1 | SILVICULTURE PRIZE ... | A. Krishnan | Madras |
| 2 | FOREST UTILIZATION PRIZE ... | O. K. Bhaskaran | Kerala |
| 3 | BOTANY PRIZE ... ... | C. E. Rappai | Kerala |
| 4 | FOREST ENGINEERING PRIZE... | K. C. Subbiah | Mysore |
| 5 | PRACTICAL FORESTER PRIZE... | V. A. Kunchumeeran | Kerala |
| 6 | PLANTATION PRIZE ... | P. Laxminarayana Reddy | Andhra Pradesh |

## SPORTS, ATHLETICS ETC.

| | | |
|---|---|---|
| 1 | THE PENTLAND SHIELD—for the *Best All-round Sportsman* in the College, during the year ... | ... T. Sebamalai (Ceylon) |
| 2 | THE MANNARGHAT MOOPIL NAIR CUP—for *Marathon Race* | ... M. K. Poonacha (Andamans) |
| 3 | AMIR MUHAMAD KHAN ROLLING CUP—for the *Best Dn. in Marathon Race* ... | ... Forester Division (M. K. Poonacha) |
| 4 | THE PARVATHI KURUP'S ROLLING SHIELD—for the *Healthiest Student* during the year ... | ... J. Bhaskaran (Kerala) |

**Dr. B. Ramakrishna Rao** then delivered his Convocation Address :—

Shri Aggarwal, Dr. Rama Rao, Students of the College, Ladies and Gentlemen,

I am grateful to the Ministry of Food and Agriculture, Government of India, for extending to me an invitation to preside over the Convocation of the Southern Forest Rangers College this year. You will probably remember that this is not the first time that I am visiting this College. I had the pleasure of attending a similar function four years ago when I was the Chief Minister of the old Hyderabad State. The pleasant impressions and memories of that visit are still preserved in my mind to this day. It is indeed a repetition of that pleasure which I am enjoying to-day due to the courtesy of my esteemed friend, Dr. Panjabrao Deshmukh. As I happen to be the Governor of a neighbouring State, whose forest wealth is not inconsiderable and in which I am naturally interested, I suppose there is no lack of propriety in my association again with this annual function of your great institution. I am grateful to you for the hearty reception accorded to me.

It is not necessary for me to stress the importance of forests and the role which they play in the economy of any progressive country. All countries the world over emphasise the importance of their forest wealth and are taking keener interest in the conservation, production and proper utilisation of their forest resources. It has become one of the advancing sciences in the world, and so far as our country is concerned, its importance cannot be over-emphasised, not merely because forests substantially contribute to our material resources, but also because of our heritage from our immemorial past.

It is not necessary for me to remind you that the ancient and glorious culture of our land had its beginnings in the great *Tapovanas* scattered throughout the length and breadth of the country. The invaluable treasures of wisdom and learning which emanated from our ancient Rishis had their local habitation in the great *Aranyas* and *Ashramas* in the forests of our country. *Naimisaranya, Dandakaranya,* and such other names are familiar to all of us as being the centres where not only the flora and fauna of our country were nurtured with great affection and care, but where also lived the wise and the learned repositories of secular and spiritual wisdom. Our classics contain innumerable references to our forests and to the myriad varieties of species of the animal and the vegetable kingdom found in them. It is an indication of the extremely intimate contact and communion which our ancients had succeeded in establishing between man and nature. It is a reflection of the great spiritual truth that all life on earth, whether animal or vegetable, is fundamentally one and a part and parcel of the whole creation. The love and affection bestowed on planting and nurturing trees is nobly exemplified in *Abhigyana Shakuntalam* of Kalidasa. We not only find the young and lovely damsel Shakuntala taking leave of the creepers and the trees which she had herself planted and nourished with care, but we also see the learned Sage Kanva actually participating in the tender feelings expressed by Shakuntala at the parting with the creepers and the deer and the pet animals that she had reared in her foster-father's *Ashrama.* You will remember that it was a rule with the kings who were very fond of the game of Shikar not to encroach upon the limits of the sanctuaries of *Tapovanas,* where all animals, wild or otherwise, were

guaranteed protection of life and freedom. This side of the fascinating story of ancient India is a proof not only of the fact that we had a continuing tradition for love of the forest, but also of animals, and were at one time the most progressive nation in this respect as well as in others

While this is ancient history, you all know that an era of competition between man and nature set in during the last few centuries, and man's ambition to conquer nature has gradually resulted in a serious conflict with the animal and vegetable kingdom. With the expansion of knowledge, man has been encroaching upon the domain of the animal and vegetable kingdom without regard to the fact that they are the perennial source of his own wealth and comfort. Many species of animals, like the lion and the rhinoceros, are becoming extinct except perhaps in Africa, and there has been such over-utilisation of forest resources and such indiscriminate denudation of forests that it has created an alarming problem even from the point of view of national economy. This has been the case more or less throughout the world; but this process is far more injurious in our country than perhaps in some other countries of the world. Being in the main an agricultural country, both our forests and animals are a valuable wealth and consititute a part and parcel of our national life. It is hardly possible for us to ignore this importance for any length of time.

In recent times, however, interest has been aroused in matters relating to the conservation, production and proper utilisation of forests in all countries of the world. There have been attempts made to co-ordinate these efforts made all over the world, notably by the F A. O. Certain attempts were also made during the last decade, especially after the Second World War, to take stock of the world forest situation and find ways and means of developing the forest wealth of the world in an organised manner. Attempts were made two or three times to collect statistics of the world position so far as forestry is concerned. They were met with partial success Questionnaires were sent to all countries of the world and, excepting a few countries, all seem to have supplied available statistics. It has thus been possible to collect approximately correct data with regard to forests on an internatioual plane.

Speaking of our own country, the recent figures show that the forests cover 2. 80 lakhs square miles, that is about 22% of the total geographical area of India. The *per capita* forest area is 3. 5 hectares in the U. S. S. R., 1. 8 hectares in the U. S. A., and only 0. 2 hectare in India. The statistics show that India's *per capita* consumption of round wood is 1. 4 cft , as compared with the United States 58 cft. The consumption of pulp products is 1. 6 lbs., as against 78 lbs. in the United Kingdom. It will be seen that not only is the forest area in our country proportionately smaller, but it is also unevenly distributed and the productivity is substantially below the average yield of forests in western countries. A forest policy was formulated in India as early as 1894 The then Government of India passed a resolution No. 22F dated the 19th October 1894, enunciating in broad outlines the general policy to be followed in the management of state forests in the country. During the last six decades that followed, attempts were made to implement that national policy within the limits imposed by the availability of finance and necessary technical personnel. After the achievement of Independence, however, the policy came in for review because of the great changes that had taken place during the preceding sixty years. The policy followed during that period did not achieve any spectacular results, but it certainly created a fairly efficient nucleus for the proper administration of forests throughout the country and put a considerable check on the growing tendency of denudation of forests. While this policy was useful to a certain extent. other necessities arose as a result of the phenomenal increase of population and the economic necessity of growing more food in the country to meet increased demands. Under the Grow More Food Campaign, rehabilitation and other schemes for increasing agricultural production, certain steps were taken which were not completely consistent with the national forest policy. Many potential forests or such areas of forests which could be utilised for cultivation had to be excised and assigned for cultivation. It must be admitted that these steps taken with the genuine and sincere desire of giving relief and improving the food situation in the country, created a tendency for landless people to encroach upon the forests of the country and squat on them, using them for agricultural purposes. This had created a problem for all states, including the State of Kerala where it has assumed topical importance.

In 1952, however, as a result of our national planning, a review of the forest policy became necessary and a National Forest Policy was formulated on 12—5—1952, which is being given effect to as far as possible. The resolution deals with the most vital national needs and formulates the policy on the basis of the following six paramount needs of the country :—

(1) The need for a system of balanced and proper utilisation of land.

(2) The need for checking denudation of forests, land erosion, and the invasion of sea in coastal lands.

(3) The need for establishing tree lands, wherever possible.

(4) The need for ensuring increasing supplies of grazing, small wood and fire-wood, etc.

(5) The need for sustained supply of timber and other forest produce.

(6) The need for the realisation of maximum annual revenue consistent with the fulfilment of other needs.

Various details were settled by the Government of India in regard to the implementation of the policy and attempts are being made to carry out the decisions.

Under the National Plan a sum of 9.6 crores had been ear-marked for the development of forests in the First Five Year Plan. As a result of the various schemes implemented by the State Goverments and in pursuance of the Vana Mahotsava Campaign started under the instructions of Shri K M. Munshi, green cover has been restored over 75,000 acres. Match-wood plantations have also been raised at the rate of 3,000 acres per year, and over 3,000 miles of forest roads were also constructed. An area of over 20 lakh acres of forest land under private management was brought under State control. The Indian Board for Wild Life was constituted in 1952 and has been doing useful work in the cause of preservation of wild life in the country. But there is much scope for increased effort in these directions and our achievements are not adequate to the needs. In the Second Five Year

Plan a sum of Rs. 27 crores has been provided for forestry schemes which aim at the rehabilitation of about 3. 8 lakh acres of what are called the 'degraded forests' and the plantation of 50,000 acres with commercially important species of trees, like teak, 13,000 acres with wattle and blue gum, and 2,000 acres with medicinal plants. Another 50,000 acres are to be brought under match-wood plantation.

Speaking of medicinal plants, I think it is absolutely necessary to establish herbaria in all States for systematic rearing of medicinal plants. It should be a joint efiort on the part of the department of Medicine and Health and the Forest Department. This scheme under the Second Plan is very modest and, to my mind, inadequate. One of the important reasons for the decline of the Ayurvedic system of medicine which is still in vogue in our country, is the gradual disappearance of medicinal plants from the rural areas. This has taken place in such a devastating manner that even the Vaidyas and the Hakims do not know the plants with which their predecesors used to be so intimately familiar In fact every village in our country had its own small forest consisting at least of brush wood and medicinal plants and such other daily requirements.

Provision has also been made in the Second Five Year Plan for soil conservation work and for prevention of erosion by various methods. Afforestation work is also going on in all States. Soil conservation work will be continued in the Second Plan at a cost of Rs. 20 crores and is expected to cover 31 lakhs acres. A Central Soil Conservation Board was set up in 1953 for organising a national programme and similar boards have also been set up in almost all the States of the country. The Central Board of Forestry, which has become a very rmportant institution in the country, is directing all development opeiations so far as forests are concerned. It is to be hoped that these organisations will receive sufficient financial provision and adequate co-operation of the people of the country. The fact cannot be overemphasised that all these efforts on the part of the Government of India and the State Governments can only succeed to the extent that they are welcomed by the people, and to the extent to which the people themselves offer their sincere co-operation. The main requirements for

the success of these plans and schemes is an intelligent understanding and realisation by the people of the country of the extreme importance of preservation, production and proper utilisation of our forest wealth. Some kind of propaganda in this matter is extremely necessary.

In this connection I may briefly refer to the attempts made in our country for imparting scientific education in forestry. You are aware of the premier institution in our country, namely the Forest Research Institute and the Northern Forest Rangers College at Dehra Dun, It was originally called the Imperial Forest College. The Forest Research Institute was started in 1906, and completed its Golden Jubilee last year. The institute was an adjunct to the Imperial Forest College, and provided a nucleus for organising forestry and forest product research in the country. There has been a rapid expansion of these activities at Dehra Dun, and we have to-day a large number of workshops, laboratories, residential quarters, etc., along with the arrangements for teaching and training in the various branches of the science of forestry. The Institute maintains various museums for general information and instruction, and other welfare centres. As a result of these achievements over the last 50 years, it now occupies a place of pride among similar institutions of the world. and has attained international recognition. The Fourth World Forestry Congress was held at Dehra Dun in 1954. It has received recognition by the F.A.O. of the United Nations as an international centre for training in forest research and education for the South East Asian Region. Again in 1955 the Institute arranged Far Eastern Forest Research Workers' Seminar for a period of two months on behalf of the F.A.O The original Imperial Forest College now renamed as the Northern Forest Rangers College has continued to train Rangers not only for the whole country but also for some of our neighbouring countries.

The Madras Forest College which was established in 1912 was later closed down and, as you know, it was taken over by the Government of India in 1948. It is now renamed the Southern Forest Rangers College. and is situated in this city of Coimbatore in surroundings which are particularly suitable for the growth of such an importantinstitution. These two Colleges have trained in all 2,262 and 1,031 Forest Rangers respectively, including 77 students from the neighbour-

ing countries like Afghanistan, Baluchistan, Burma, Ceylon, Malaya, Nepal, etc. These Colleges are geared to cater for the increasing demands for trained personnel for the expanding needs of States' Forest Departments. I am extremely happy and I think the students of this College are lucky in securing such beautiful surroundings for its location. Though this institution has had a chequered career since its establishment in 1912 by the Government of Madras, it has done yeoman service during the past. Since the College was taken over by the Centre in 1948, I was happy to know that 324 Rangers have been trained, thus bringing the total of trainees in this College to 1,031 since 1912. This institution is expanding, and I am happy to note thas training facilities for Superior Forest Services are also provided in this College, and 54 officers were trained under this scheme during 1948-51 for Central and Southern States. The chain of Regional Foresters Schools started by the Government of India will be extremely useful in disseminating knowledge of forestry on a wider scale than before. I am happy to note that you have also a Regional Foresters School as an adjunct to the College, Short course of one year will be very useful for the Subordinate Service of the Forest Department. I am happy to note that the strength of the College is increasing. I am glad that this College is also providing training for students from Ceylon under the Technical Co-operation Scheme of the Colombo Plan. The addition of two new subjects of Logging and Wild Life Management in the curriculum for the Rangers' trainees is a very valuable improvement calculated to widen their outlook and expand the scope of their activities.

In a College like yours dedicated to the constructive task of preservation and proper utilisation of forests, theoretical 'know-how' is of comparatively lesser importance to my mind. It is the practical study and tours that will give the students the necessary contact with actual forest life and its requirements. Practical training in actual forests is what is needed most, and it is that which will give them the stamina and the background for their future career. These tours, though physically exacting and perhaps not quite suitable for the physically weak people, are sure to instil in the minds of the young trainees an instinctive love for the objects of their study, namely the

*flora* and *fauna* of the country. Unless the students take to forestry with genuine interest, I am afraid their future life will not be enjoyable at all. The selection of students for these courses must not entirely depend on the academic or other qualifications which are necessary. Some kind of a psychological test should also form part of the standards laid down for the selection of students. Unless the student shows particular aptitude and liking for this kind of strenuous life and for the particular objects of study, the training afforded to him in this institution will not be of much avail. I am glad that, besides curricular activities of the students, the institution provides for a variety of non-curricular activities which must form a necessary part of students life in any educational institution. With large area of 180 acres under the control of this College, it should be possible for the institution to provide facilities for all requirements of the students of this College as well as the staff. The museum attached to the College is undoubtedly of great educational value not only to the students of this College, but also to all visitors from outside, and the local public.

Before concluding this address, I suppose it is my special duty to say a few words addressing the students in particular. I am sure I am not expected to give you, my young friends, any particular advice. Advices contained in Convocation Addresses are not usually welcomed by the students. I am not competent to prescribe any 'Dos and Don'ts, for you, the trainees of this College. You have not only been given training in the theory and practice of forestry, but I am sure you have already tasted as a sample the strenuous life to which you will be called upon in your profession and career. A Forest Officer is much more than a practitioner of good forestry. He has to perform various other duties in addition. Some times he has to be a policeman, an engineer, and even the much-maligned tax-gatherer. You might be called upon to give first-aid or give medical advice in an amateurish manner. You will have to supervise fellings and regeneration of forest areas. The posts that you will fill, are not like the other professional jobs or other forms of puplic service. Your calling calls for the extremest kind of discipline, very much like the discipline in the Armed forces. Moreover, it calls for the highest standards of integrity. The need for honesty and integrity in any field of activity or in any

sphere of life can never be over-emphasised. It has been a matter of great pain to all leaders of our country that adequate attention is not given to the building of character among the youths of the country during their educational career. It is a matter of the utmost importance that the youths of our country are trained not only for the efficient discharge of their professional or other duties, but that they should, like Caesar's wife, be above suspicion of corruption or dishonesty, a poison of a very devastating nature which unfortunately seems to be spreading in all walks of life. The very object of your career as preservers and maintainers of the forest wealth of our country will be frustrated entirely, if you stray from the path of highest standards of integrity. I am sure your education and upbringing, as well as your training in this College, and your own inherent nobility of character has equipped you with this golden virtue. I know your path is not easy and yet you cannot expect me to give you any better advice which will make it easy. The path of virtue and in fact life itself provides a very hard course; and yet it is that arduous path that we have to follow without forgetting the high ideals of life. I heartily congratulate you on the successes that you have attained not only in your examinations and training that you have rceived here, but also in various other activities in which you have participated during your career here. I wish you every success in your future career, and hope and pray that your efforts in future in the direction of saving and improving the forest wealth of the country may be attended with all success! JAI HIND!

The function concluded with a vote of thanks proposed by **Shri C. A. R. Bhadran,** I. F. S., **Deputy Inspector-General of Forests,** Govt. of India, New Delhi, who said:

Dr. Ramakrishna Rao, Ladies and Gentleman,

I have first of all to convey the sincere apologies of the Inspector-General for his unavoidable absence today at this gathering. He has been compelled on his return from a long tour abroad to attend to various urgent developments in order that under the Second Five-Year Plan, in so far as we are concerned, schemes could be safeguarded and progress maintained without any set-back due to the foreign exchange position.

To you, Sir, we are very grateful for your presence. If I am not giving any secret away, when the invitation was received by Dr. Rao from the Minister of Agriculture, Govt. of India, he was modest enough to draw the attention of the Minister to the fact that he had previously graced a similar occasion and that it would perhaps be preferable for the Govt. of India to think of somebody else, but Dr. Panjabrao Deshmukh had to reassure him that his presence again would be not merely welcome by itself but would be welcome also because he would be coming in a capacity different from that in which he attended on the previous occasion. We do know that your responsibilities as Governor are particularly arduous, and we are extremely grateful to you for accepting our invitation to preside over this function. As to the propriety of your presence here, I would paticularly request you to accept our humble assurance that it would always be appropriate for a politician and administrator of your seniority and eminence to associate yourself with forestry not merely on occasions of this kind but always. And we do look forward to that association with great anticipation, because our cause would be safe in hands like yours.

I have to mention that it is likely that Mr. Aggarwal, President of the Forest Research Institute and Colleges, would be leaving us shortly on a well-earned retirement. He has been Director of Forest Education for a full term of three years and as administrator he has guided Forest Research and Forest Education in this country for three years. Mr. Aggarwal's contribution to forest research and forest education will remain engraved in the annals of the Forest Research Institute for a long time to come We are particularly happy that in spite of serious inconvenience he has been able to attend this function, probably the last puplic function of this kind for him. I am particularly grateful to him for his presence.

Mr. Bhadran referred to the inadequacy of instructional staff in the Dehra Dun and Coimbatore Colleges and said: We in the Government of India have been making efforts to rectify the situation in every possible way. The Colleges have always obtained officers from the States on deputation so that their exprience, not only in administ

tration but also in field, work, could be passed on to future generations of foresters. At present the States themselves are suffering from a serious lack of senior officers and are finding it extremely difficult, especially in view of the expanding programmes of forest development, to spare officers even if they have the wish to do so. On the other hand, comparatively junior officers on whom we have to depend do lack that experience which we look for in the system of obtaining officers on deputation. In fact as a counsel of despair, merely to meet this question of numbers, it has been proposed some years ago that a Central Forest Service should be established so that this dependence on States for officers to man the Central Government's posts, whether it be in the field of forest research or forest education, may not arise. I for one, speaking personally, would very much regret the development. In fact, that development is not looked upon as anything attractive. It is merely looked upon as something we cannot avoid. For four years since the idea was originally proposed we continued with the old arrangement in the hope that it could be continued. But after the recent reorganisation of the states, as the blessings of the States Reorganisation Commission to establish a unified forest service in the country have proved abortive and as we will not be in a position to call on the States to provide for us men on their cadres, it is possible this scheme of Central Forest Service may emerge. I would only appeal to Dr. Rao and other administrators in the States that they should do their best to interest themselves in this question. If even at this stage we can get an assurance from the States, it would help us to avoid going to this Central Forest Service.

Dr. Rao made a reference to the probable necessity for adopting a revised retiring age for all technical service. I certainly am not competent nor have I the knowledge to talk about other services, but about my own service I can assure Dr. Rao that we have already implemented it in fact if not by any written order, and that, in practice, the retiring age so for as senior officers are concerned is practically raised for all purposes. For instance, Mr. Aggarwal is retiring two years later than he should, have. Mr. Takle is on extension and he is the third in the line of successive officers who have served as Inspectors General on Extension. The same is the case with many of the States, with

regard to Chief Conservators and Conservators. It has become a normal procedure that most of our people retire at 57. But it has not been made a rule. It does not probably matter.

I would next mention what has already been mentioned about the establishment of the Southern Forest Research Station. We have great hopes in this station. It is one of our main items in the Central category of schemes for the Second Five Year Plan. In order also to meet the requirements of Southern States, as based on various products in this part of the country, the utilisation aspects of forest research are being developed at Bangalore. It also happened that the Mysore Government had an institution, small it might have been, for forest research located at Bangalore and this has proved a very useful nucleus from which to start. In fact, that Institution was taken over about six months ago and it is now in the process of being expanded and developed to meet the requirements of the south, almost as equitably as the Forest Research Institute at Dehra Dun will continue to do with reference to the north. The Forest Research Institute at Dehra Dun will, however, continue to be the parent Institution which will guide the southern institution. Following on the Southern Research Station, similar stations will be established in other regions of the country such as the east and the west. We recognise that a single institution, however useful all these years, will find it more and more difficult to continue to serve the country fully and effectively, and that is the main reason for the develepment of these research stations.

Dr. Rao has told us about the five year plans. I would only add that our second five-year plan schemes are very much more ambitious than the first five year plan schemes, and it stands to reason that very much more hard work will be required if this enlarged second five year plan is to be developed adequately by young officers.

Turning to the outgoing students, Mr. Bhadran said: You have received considerable instruction and opportunities for extra-curricular activities. In your career as forest officers these activities will assume importance and you will give equal attention to them as to

your regular duties. For instance, take Vana Mahotsava. There is a popular conception that it is something apart from forestry. I wish to emphasise that Vana Mahotsava is primarily a matter in which we are expected to take the fullest part. The main part we can take is to give technical information to the villagers and assist them with seed and planting material. Contact with the people and contact with the development of tree-planting and other amenities are indicated more and more, and that is an aspect of forestry which I would particularly bring to your notice.

Lastly, I thank all our guests of today. Coimbatore has been traditionally known for the great interest it takes in this College. I am glad that that tradition is being kept up. I thank you all.

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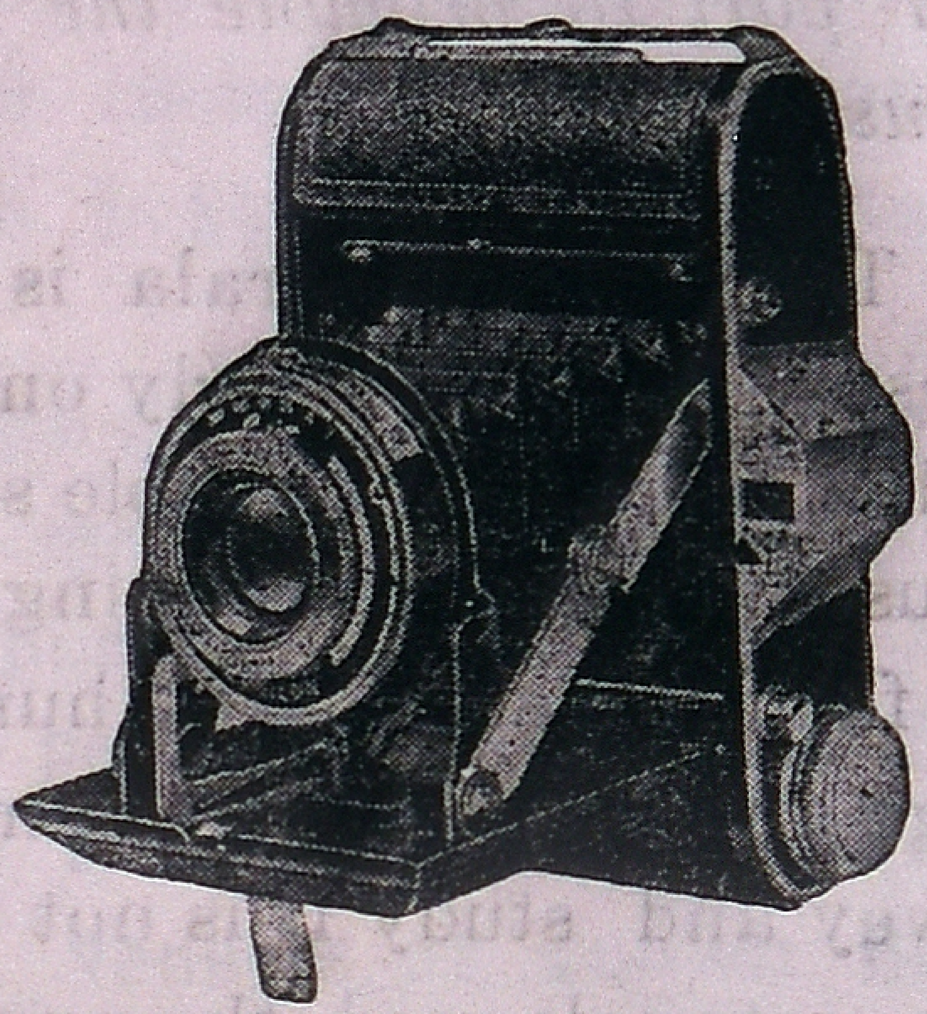

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# Forest Resources in the Service of Industry in Kerala State

By

**Shri A. I. IYPPU,**

*Silviculturist Kerala State*

(This article which was contributed for the special Issue of July 1957 could not be included therein, and is now published—Ed.)

**Summary:** *The vast and varied resources of Kerala forests are full of potentialities for new avenues of industrial production. The scope for expanding the production of matches, plywood, veneer, pulps' paper and rayon, furniture, packing cases, sleepers transmission poles and numerous others on an industrial scale. better organization of cottage industries and increased large scale seasoning and preservation treatments of timbers so as to bring into use uew species, etc, and the need for the industrialists, research-workers and foresters to play their part to promote the fullest utilization of forest resources are discussed.—Ed.*

The State of Kerala is blessed with one of the finest and richest forests occupying nearly one-third the area of the State. These forests with a variety of valuable species provide raw materials for a series of industrial concerns ranging in size from the cottage industry level to big factories employing hundreds of workers, Wood based industries, large and small are so numerous and scattered that without proper survey and study it is not possible to correctly assess the quantities of raw materials used, the number of men employed, the total quantity of finished products and the costs involved. It will be worthwhile to undertake a detailed investigation of this sort.

One of the most important industries based on timber is the **Match Industry** which ranges from very small units, one of which is using bamboo splints for making sticks, to fairly large sized factories. These concerns depend on species like *Salmalia malabarica, Ailanthus malabarica, Evodia roxburghiana, Alstonia scholaris, Vateria indica,* etc. Scattered all over the State are quite a good number of cottage indus-

tries making matches either completely or partially. In many cases seigniorage rates are fixed and the factories are allowed to collect the sanctioned quantities from forests by themselves. Part of their requirements are met from purchases from timber depots or from private individuals. With the present programme of raising more of matchwood plantations, it is expected that more of the required species will be available for this industry.

Another wood-based industry is that of **plywood manufacture.** Some of the important plywood manufacturing factories are located in the State and regular supplies of softwoods like *Vateria indica, Palaquium ellipticum, Machilus macrantha*, etc., are made from the forests. The raw materials for these factories are purchased as in the case of match industries. One of the important plywood factories is Government owned Punalur Plywoods, the products of which are mostly sold to K. D. H. P. Co., Munnar for packing tea. More of suitable species which are available in sufficient quantities are to be tried as to their suitability for making plywoods so that there will be no dearth of raw materials in future. Introduction of more of modern techniques and machinery is essential for increased production of quality plywood, a large quantity of which is at present imported.

As regards **veneers**, Kerala possesses some of the finest ornamental woods like *Dalbergia latifolia, Terminalia tomentosa. Adina cordifolia*, etc. Most of the quality Rosewoods are exported for veneering, and fetch fancy prices going up to Rs. 175/- per cft. If veneers from these timbers are manufactured in the State itself, they will have a good market as dealers would prefer to buy veneers of known figure rather than risk with logs of unknown figure quality. Besides, introduction of good veneers will effectively reduce the use of many of our superior quality timber.

The State's forest wealth is full of scope for the manufacture of **pulp and paper.** At present the only paper mill in the State is the comparatively small one at Punalur which is almost entirely fed by reeds. The demand for paper is increasing every day, but efforts to utilize the raw materials like bamboo and reeds, available in plenty

in the State, are still lacking. To supplement the existing resources, schemes are almost ready to take up large scale afforestation of grass-lands with suitable species fit for pulp and paper manufacture.

The Travancore **Rayons** depends at present on imported pulp. Recent investigations have given very hopeful indications that reeds *(Ochlandra* species) will be a suitable raw material for the manufacture of rayon pulp. More of concentrated research as to the suitability of the various species for conversion into pulp has to be undertaken without any further delay.

**Furniture making** is not organized on an industrial scale in this State, though there are numerous workshops dealing in furniture. The use of modern machinery and methods like covering treated inferior wood with suitable and attractive veneer or plywood coverings and introduction of new designs are to be adopted to improve quality and quantity of furniture production.

Another important wood-based industry is the manufacture of **packing cases.** There are various types of Sawmills which require large quantities of round timber. Of late, many of the species that did not have a demand have found a ready market in the manufacture of packing cases. The most common species used are *Tetrameles nudiflora, Acrocarpus fraxinifolius. Cullenia excelsa, Eugenia jambolana, Mangifera indica. Miliusa velutina. Polyalthia, fragrans,* etc. But this industry, if it has to develop has to take resort to a certain amount of seasoning.

At present there is a great demand for supply of **sleepers** to Railways and **transmission poles** to the Electricity Department. With proper preservative treatments more species can be utilized for the production of sleepers or transmission poles. The importance of starting on an industrial scale plants for kiln seasoning and preservative treatments cannot be overstressed. Many of the so called useless species of today are potentially capable of being converted into marketable timber if suitable seasoning and preservative treatments are given. If treated wood can be made available at cheaper rates, some of our more valuable and rare species can be profitably diverted for outside supply or export.

A large quantity of teak from the State is utilized by Railways for construction of railway carriages, and Malabar teak has always been famous for ship building. A ship building yard is expected to be opened shortly at Cochin.

In this connection mention must also be made about the important part played by wood and other forest resources in **cottage industries.** There are a large variety of cottage industries based on raw materials like bamboos, reeds, rattan, ivory, wood, etc. and a very large number of people make their living on them The exquisite ivory articles, wooden carvings, rattan works, etc. of Kerala are famous all over the world. Better organisation and marketing facilities alone will improve these industries. A survey of the forest products in the economy of village life may bring forth astonishing facts about the significant relationship of forests to the welfare of the villagers.

So far, the **chemical possibilities of wood** have not received the attention they deserve. There are products of wood that are strong as steel and light as aluminium. Impregnated paper, block-boards, fibre-boards, wall-boards, etc. are a few among products of this category. The production of 'grain' alcohol out of wood waste and saw dust, plastics from wood, compreg, uralloy, papreg, staypak, etc. are some of the modern discoveries as products from wood that will have far-reaching results in the industrialization of the country. The construction of pre-fabricated houses, if taken up on an industrial scale, will go a long way to solve shortage of houses. There is immense scope for a factory which can produce quality textile accessories like shuttles, bobbins, loom harnesses, picker sticks, wooden toys, drawing instruments, etc. Small scale industries can be revolved around the various minor forest products.

Every effort should be made by industrialists to make the maximum use of all the available raw materials and reduce waste as far as possible. For their part, research workers should find out more and more of suitable species fit for the various industries. Foresters should not fail to cope up with the oncoming industrial expansion, and must plan out well in advance to provide for the future requirements of the industries.

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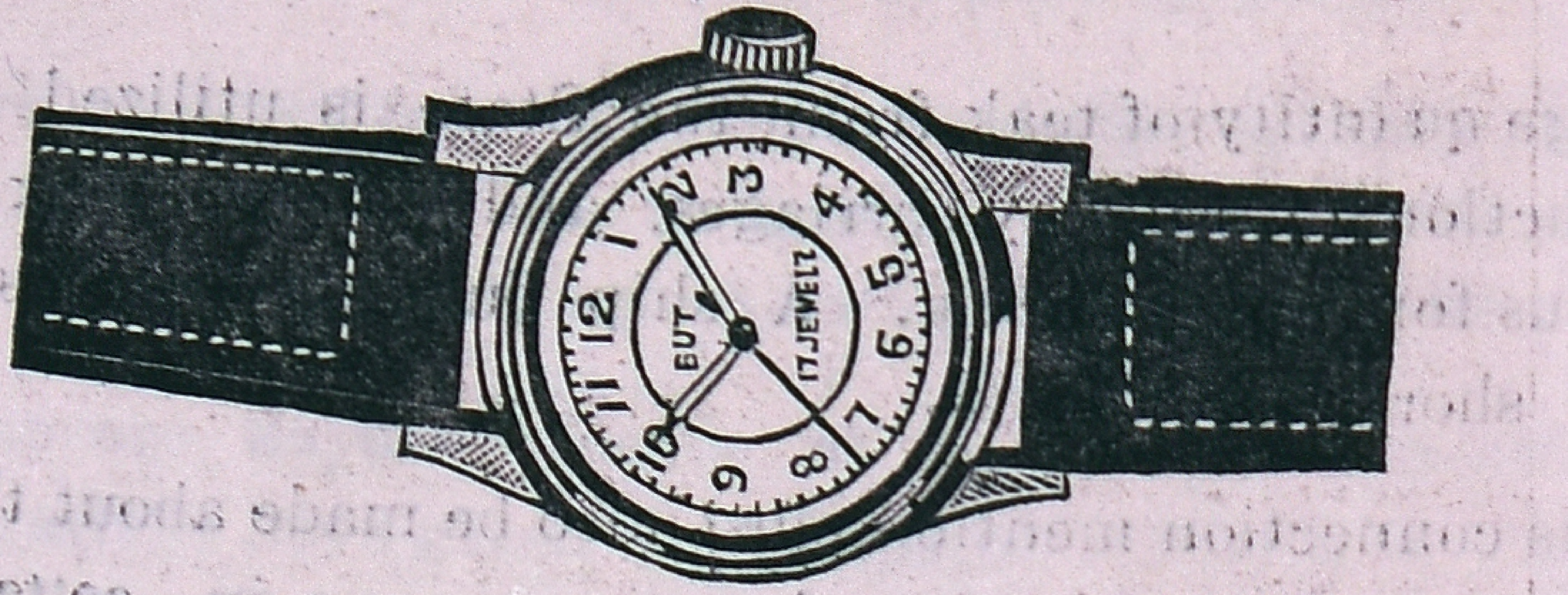

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Time is the measure of business as money is of ware.

—*Francis Bacon.*

Time was created as an image of Eternity.

—*Plato.*

The time that bears no fruit deserves no name.

—*Young.*

Time is the stuff life is made of.

—*Ben Franklin.*

There is no better test of a man's than time.

—*Simonides.*

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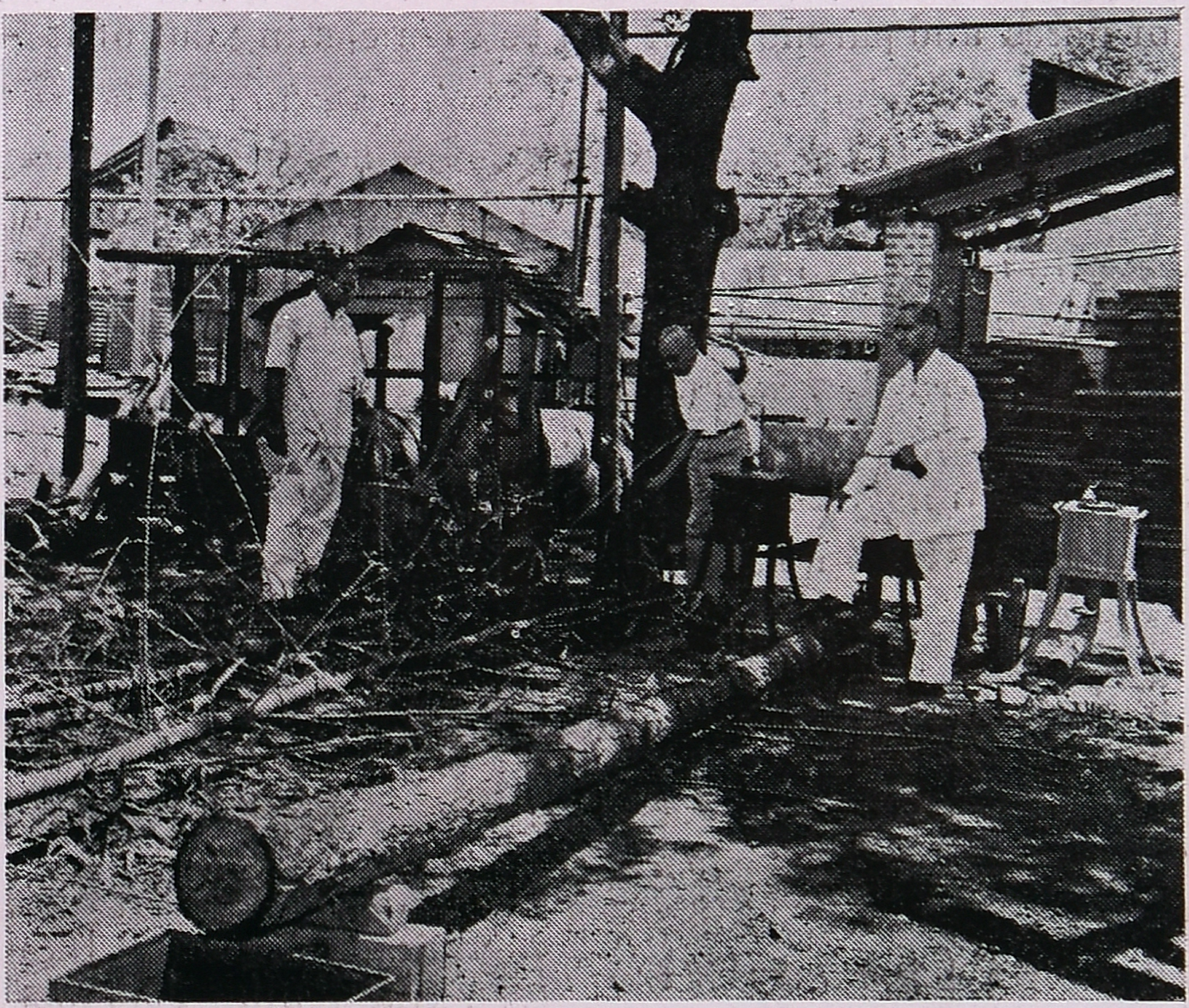
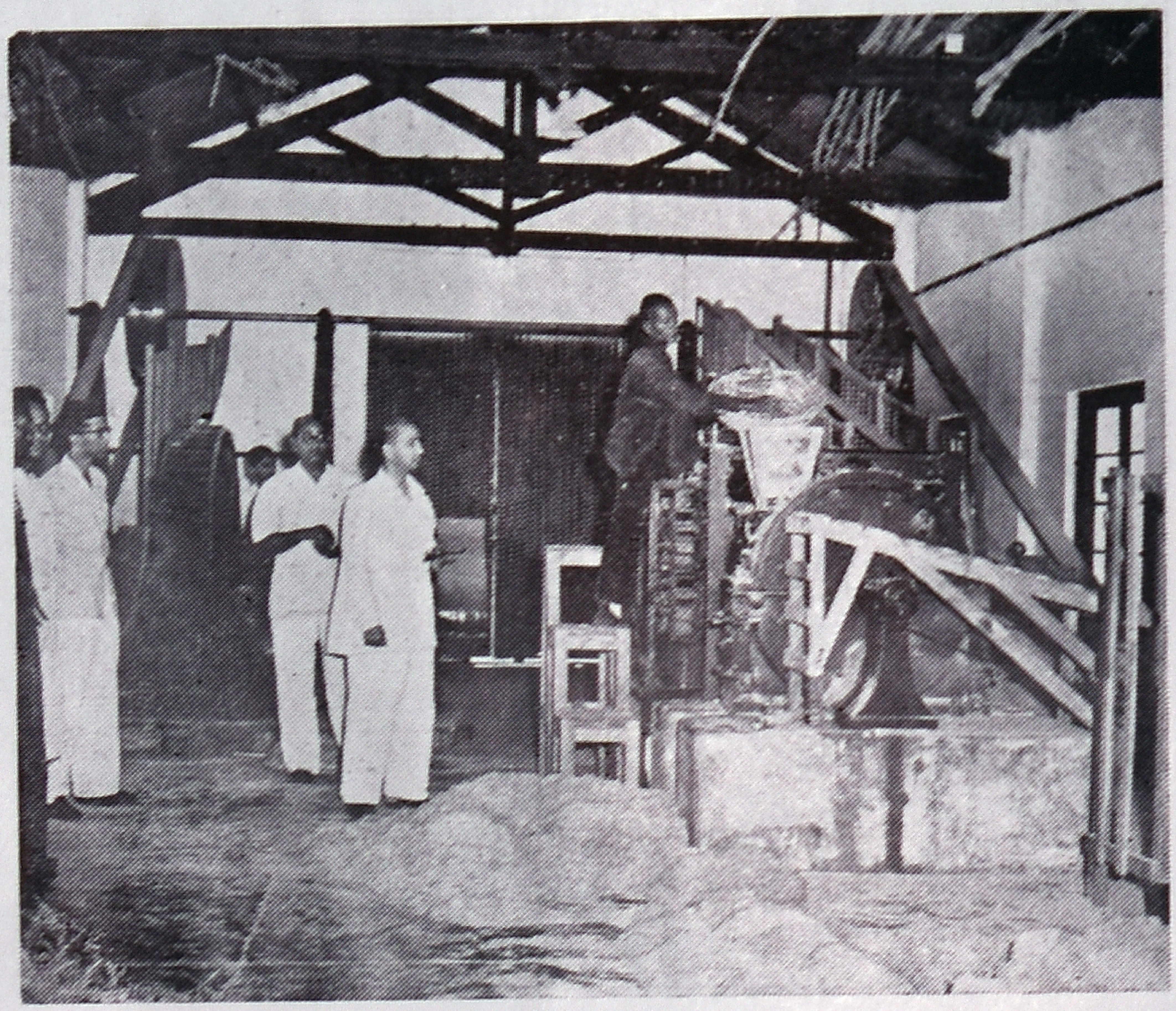
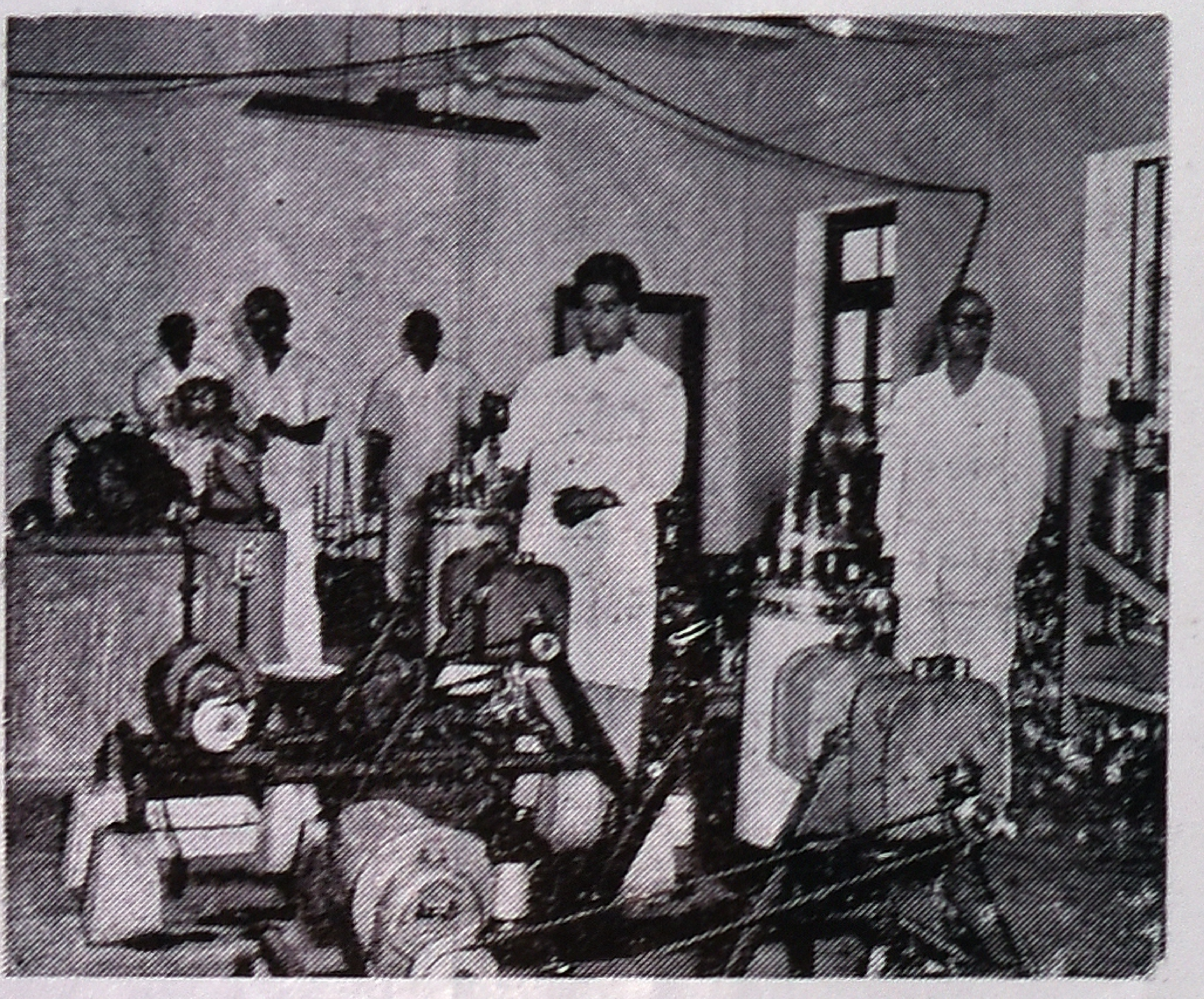
A view of the slicer which has replaced the peeling lathe. — F.R.I.



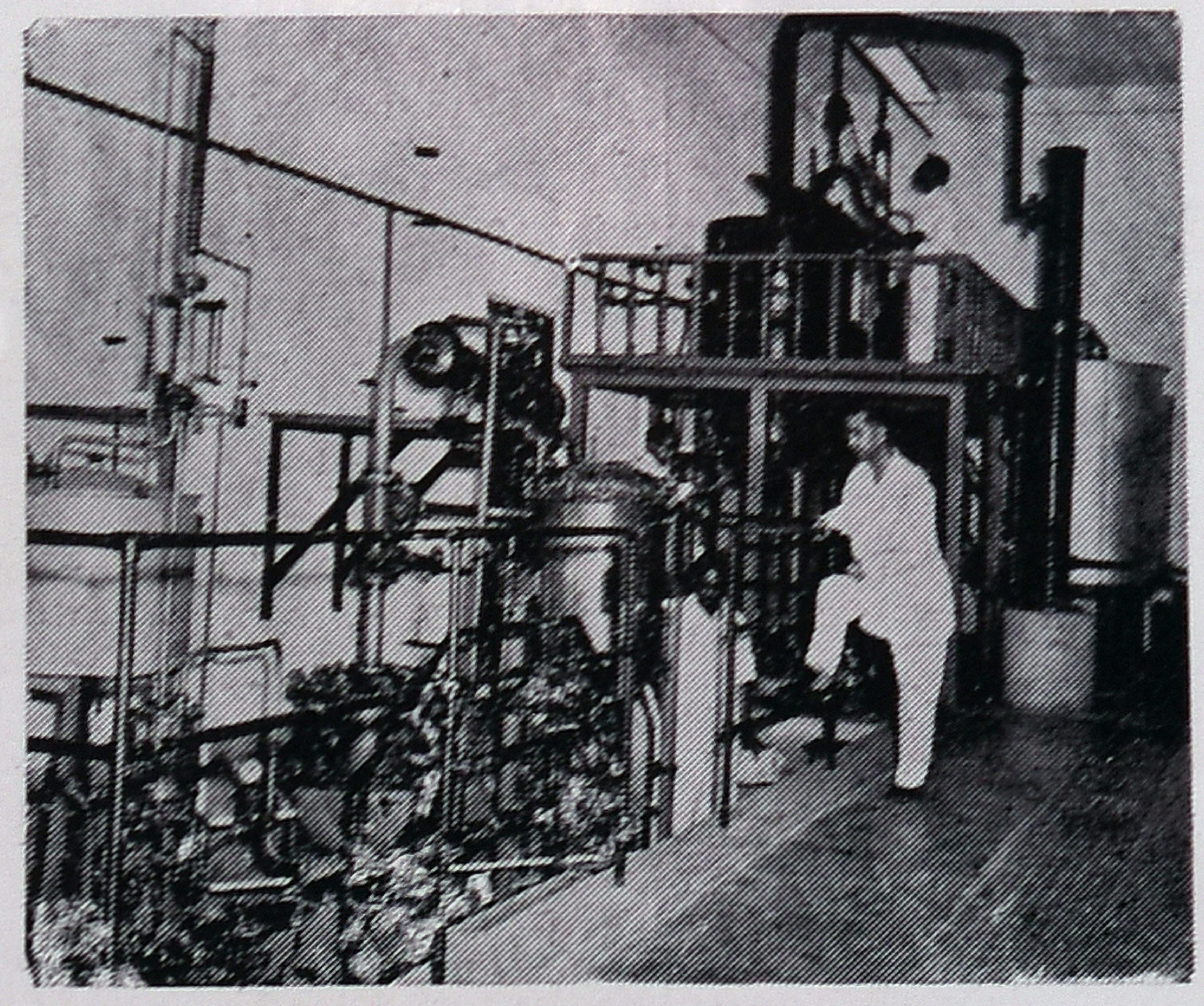
Showing the preservative treatment of green bamboo and poles by the modified Boucherie process in which top of pole or bamboo is attached to a container having preservative solution through a pressure rubber tubing. The bamboo after treatment can be cut or split and used for any purpose. — F. R. I.



The hammer mill used in the production of cheap paper from bamboo; The bamboo chips are being fed into the mill and the mixture of fibres and parenchyma can be seen coming out of it. — F.R.I.



A view of the new pulping laboratary at the F. R. I. In the foreground are two rotary autoclaves withautometic temperature control. In the back-ground can be seen the laboratory refiner for semi-chemical pulping.



A view of the units like stills soxhlet extractors, fractioning columns etc., which are run both with steam and electric current for the isolation of various essential oils from a variety of forest plant products. The researches carried over help the perfumery cosmetics and allied industries. — F. R. I.

# Major Forest Industries and the Need for their Expansion

Shri O. P. BHARGAVA, B. Sc., Dip. For. (Oxon), A.I.F.C., D.D.R. (Hons.)
*Publicity & Liaison Officer, Forest Research Institute and Colleges, Dehra Dun.*

(This article which was received for the special Issue of July 1957, arrived too late to be included therein, and is now published—Ed.)

**Summary:** *The total forest area and forest resources of India, though considerable, fall short of requirements indicated in the National Forest Policy of India, 1952, and do not stand comparison with those of the more advanced countries. The only way to make up for this shortage is to intensify the utilization of these resources by industrialization. The scope for such industrialization is discussed, with reference to possibilities and indications of researches done so far, under the more important heads of major and minor forest products.—Ed.*

Industrialization in all possible ways is of great importance if our countrymen are to be saved from economic chaos and degradation. Only industrialization can increase the national income and national prosperity. When poverty and unemployment threaten us constantly and when imports of foreign goods are to be restricted and exports of finished articles stepped up for earning adequate foreign exchange, it is imperative that we should explore the possibilities of industrialization in all fields in which potentialities are such that industries—"cottage" as well as "large scale" machine-operated mills and factories—can be based on them. The forest resources of India are indeed considerable, though not ample, and provide adequate scope for developing 'forest industries'.

Forest in India occupy an area of 2,74,050 sq. miles, which is 21.63% of the total land area, but of it only 1,81,180 sq. miles or 14.3% are economically exploitable. The distribution of our economic forests is unfortunately very unbalanced. Whereas in Andamans forest area is 77.8%, Orissa has only 7.6% and Punjab 13%, and Rajasthan is the poorest in this respect. According to the National Forest Policy of 1952, India

is to have about 33% of its land area under forest, of which 60% should be the minimum in the hills and 20% in the plains. Our present forest area, therefore, is still inadequate, but this can to some extent be made good by rational use of the major and minor forest products.

This brings us to the question of the composition of our forests. In general, the picture is as under:—

| | | | | |
|---|---|---|---|---|
| A. | Coniferous (chair, kail, fir, etc.) forests | | | 14,018 sq. miles. |
| B. | Sal | ... | ... | 42,113 ,, ,, |
| C. | Teak | ... | ... | 16,780 ,, ,, |
| D. | Miscellaneous | .. | ... | 188,410 ,, ,, |
| E. | Blanks | ... | ... | 12,729 ,, ,, |

The average growing stock of our forests as compared to the other countries is—

| | | | |
|---|---|---|---|
| India | ... | ... | 266 c.ft. per acre of timber |
| Switzerland | ... | ... | 3,474 ,, ,, |
| U. S. A. | ... | ... | 1,015 ,, ,, |
| Germany | ... | ... | 1,558 ,, ,, |
| China | ... | ... | 1,615 ,, ,, |
| France | ... | ... | 915 ,, ,, |

The total annual output of timber in India is about 95 million c.ft. and of fuel about 405 Million c.ft. The comparative figures of pre-war and post-war periods were as follows :—

| Year | Average outturn per annum of fuel and timber in thousand tons | Average Annual revenue Rs. in Crores | Area under regeneration in sq. miles | Cost of regeneration in rupees Lakhs. |
|---|---|---|---|---|
| a) Pre-war years (1936—1939) | 4379 | 2.5 | 798 | 6.4 |
| b) War years (1939—1946) | 5764 | 6.3 | 814 | 9.9 |
| c) Post-war years (1947—49) | 6130 | 11.1 | 1,221 | 28.7 |

The per capita consumption of wood in india is only 1.5 c.ft. as compared to 75 c.ft. of U.S.A. and 25 c.ft. of France. and this is significant as it reflects the prosperity of the individual and is an index of the standard of living of the people.

From the industrial point of view, the products from the forests can be divided into the heads of major forest produce, i. e. timber and other wood, and minor forest produce which includes charcoal, katha, gums, resins and oleo-resins. essential oils, bamboo, cane, grasses. fibres and flosses, edible fruits, medicinal herbs. horns and hides, lac, etc. Amongst the most important timbers are teak *(Tectona grandis)*, sal *(Shorea robusta)*, deodar *(Cedrus deodara)*, chir (*Pinus longifolia*), kail (*Pinus excelsa)*, sissoo (*Dalbergia sissoo)*, haldu (*Adina cordifolia*), Sain ( *Terminalia tomentosa* ), siris ( *Albizzia lebbek* ), rosewood (*Dalbergia latifolia*), padauk (*Pterocarpus dalbergioides*), *etc.*, but there are woods like sandal (*Santalum album*) used for distillation of an essential oil or salai (*Boswellia serrata*) and fir (*Abies pindrow*) and spruce (*Picea morinda*) for pulp and Gurjan (*Dipterocarpus turbinatus*) white chuglam (*Terminalia bialata*), *etc.*, for plywood which find use in industries other than constructional or cabinet-making.

The wood-based industries are of varied types and include.

**A. Depending on sawn or round timber :**

1. Saw mills producing sawn timber for constructional use or for railway sleepers and carriages, etc. or for ship building or for furniture making;

2. Miscellaneous industries which manufacture articles like shoe-lasts and heels, battery separators, textile and jute mill accessories, tool handles, sports goods, wood turnery, articles of lacquer work, mathematical instruments, pencil making, etc.;

3. Round timber for utilisation as house posts, bridge piles, telephone and telegraph posts, etc.

**B.** Among the important industries **which depend upon wood other than sawn timber**, the following are note worthy :

1. Plywood including composite wood and diaper (from veneers);

2. Cellulose and paper (from wood pulp, though grasses and bamboo are the other raw materials);
3. Matchwood (from light woods);
4. Katha and cutch (from heartwood of khair tree);
5. Sandal wood oil (from heartwood of sandal).

C. The third category is of industries which are **based on minor forest produce** and the most outstanding of these are:

1. Charcoal (depending on fuel and branchwood);
2. Resin (manufacture of rosin, turpentine, etc.);
3. Lac (depending on lac and producing various shellac articles);
4. Essential Oil (depending on Rosa, Lemon and other grasses as well as various other plants).

As regards industries under category 'A' we have lot of scope for improvement, which should primarily be in selecting secondary species (other than teak, sal, deodar, etc.) for the purposes for which they are really suitable and trying to remove defects in them by various scientific processes. Also full attempts must be made to prolong or lengthen the life of the timber in service by processes like seasoning and wood preservation and to use the short dimensioned stocks specially by newly devised timber joints based on the study of the properties of various timbers. These steps to some extent may result in general economy of timber.

Under category 'B', plywood industry is very important and has made rapid progress during the last three years. There are about 66 factories of which 14 are in Assam, 35 in West Bengal, 11 in Kerala, 3 in Mysore and one each in Bihar, U. P., and Madhya Pradesh. The capacity of the industry is tentatively assessed at 152 million sq. ft. or nearly 8 6 million sets of tea chests. It is encouraging to note that the production of plywood, tea chests and commercial plywood has almost doubled in the past 3 years and the industry is employing about 6500 workers per day. By the end of 1960 the demand of ply tea chests alone is estimated to touch the figure of 6.5 million sets and of other

plywood nearly about 40 million sq. ft. These can easily be met by putting more and more secondary species in use and extracting them from parts of forests which are now considererd somewhat inaccessible but may soon be brought within the orbit of organized extraction with the development of forest roads, tramways or other means of communication.

Cellulose and paper industry is at present using only salai (*Boswellia serrata*) wood and sabai grass (*Eulaliopsis binata*) as raw materials besides bamboos and limited quantities of bagasse and wheat and rice straw. The main species of bamboo in use for paper pulp are :—

1. *Dendrocalamus strictus*
2. *D. hamiltoni*
3. *Melocanna bambusoides*
4. *Bambusa arundinacea*
5. *Bambusa balcooa*
6. *Bambusa nutans*
7. *Bambusa vulgaris*
8. *Bambusa tulda*
9. *Ochlandra travancorica*
10. *Ochlandra rheedii*

The Cellulose and Paper branch at the Forest Research Institute has been making intensive efforts to find more and more Indian wood and grass species for the manufacture of paper, fibre boards, rayon pulp, etc., and tests on the following species have been completed and results circulated:—

1. *Arundo donax*
2. *Ricinus communis* (castor)
3. *Lannea grandis* (jhingan)
4. *Helicteres isora* (marar phali)
5. *Themeda arundinacea* (ulla grass)
6. *Vetiveria zizanioides* (khus)
7. *Broussonetia papyrifera* (paper-mulbery)
8. *Fragnites karka*
9. *Sterculia campanulata* (papita)
10. *Andropogon contortus* (kusal grass)

11. *Trema orientalis* (blume)
12. *Albizzia stipulata* (siris)
13. *Acacia decurrens* } (wattle)
14. *Acacia mollissima* }
15. *Sterculia alata* (detkok)
16. *Eupatorium odoratum* (Assam lota)
17. *Themeda cymbaria* (elephant grass)
18. *Saccharum procerum* (rhutang grass)
19. *Eucalyptus globulus* (blue gum)
20. *Pinus longfolia* (chir)
21. *Imperata cylindrica* (illuk grass)

There are about 23 paper and 8 board mills in India which seek technical guidance and assistance from Dehra Dun. Recently with the help of Wood Anatony Branch, the Cellulose branch has developed a process wherein the yield of pulp from bamboo is expected to rise up from 38% to about 68 to 70% by separating bamboo parenchyma by mechanical means and using it for pulp.

It is quite possible that in the integrated location of the wood based industries, the rejections of the plywood and the thin cylindrical log pieces can be used for manufacture of mechanical pulp thereby reducing the waste considerably. Industries like rayon pulp or kraft and wrapping paper should in fact be planned so as to utilise the wood as fully as possible.

The question of utilisation of waste liquors of paper mills has been engaging the attention of the industry. The black liquor obtained in sulphite processes is evaporated and dry solids thus obtained are burnt in the boiler furnace, resulting in a saving of about 600 lbs, of coal per ton of pulp. The waste liquor usually contains lignin, sugars, calcium and sulphur with small fractions of volatile organic acids. The possibility of manufacturing alcohol, yeast, binding and tanning materials and fertilisers from the black liquor exists, and research is continuing on it. Similarly, the alkaline waste liquor obtained by soda process can also yield useful products.

Like plywood and paper industries, the development of matchwood industry in India is also only about 30 – 35 years old, because real

impetus came when in 1922 a tariff wall of about Rs. 11—8—0 per gross was raised against imports. The import of 14 million grosses in 1921-22 declined to 4 million grosses in 1927-28 and since then the decline continued progressively. In 1947-48 only 47,925 grosses were imported and now India enjoys a somewhat good export trade in the commodity. Aspen is the most favourite wood used for match splints in Sweden, Russia, Germany, etc. This has been replaced by Semal, Papita etc., in India. Andaman forests supply dian (*Bombax insignie*), bakota (*Endospermum* sp.), lambapatti (*Sideroxylon longipetiolatum*). papita (*Sterculia campanulata*) and kadam (Anthocephalus Cadamba) to match industry while semal is obtained from the *terai* and other forests in different parts of the country. Besides Western India Match Co., who manufacture 80% of the Indian demand of matches, several other match factories have come into existence and efforts are being made to find out more and more species suitable for the industry. Recently bamboo has been tried tor match splints and this could be taken up where matches are manufactured on cottage industry basis. Almost all States are raising matchwood plantations to fulfil the demands of this industry.

Here again research is necessary to (a) find more of the secondary species growing in the forests which can be utilised for matches, and (b) utilise all waste wood for industries like paper pulp, fibre boards, diaper boards etc.

The other two industries dependent on wood are those of katha and sandal wood. Intensive work towards improvement of the country process practised by Khairwas for the manufacture of katha has been done by Chemistry Branch of the Forest Research Institute, while sandalwood industry has also been reorganised under adequate technical guidance. Under afforestation schemes of the States *Acacia catechu* and *Santalum album* are being raised to increase the potentiality for these industries.

The utilisation of the timber wastes is an important aspect which has been tackled at the F. R. I. The veneer wastes of plywood and odd timber pieces of saw dust of saw mills and cut jumbled chips of match factories, etc , have been ingeniously used in the Forest Research

Institute in manufacturing beautiful designs in what is known as **Diaper work**. Pieces of waste veneers are glued together and moulded into a cake which can be cut to yield various geometrical and floral designs giving beautiful table tops or coloured floral diagrams for book ends or diaper boxes, etc. The designs display many colours which can be obtained from natural timber or dyed timber. The greatest advantage of this technique is that we need not depend on timber wastes only, but similar articles can be produced from thin bamboo pieces or old match boxes, etc. It is obvious that large scale utilisation of timber wastes is within the reach of an ordinary man of industrious habit. With care and proper planning it can throw open possibilities of attracting foreign markets, which is very much needed to cut our imports and earn foreign exchange. With the expansion of timber industries the quantities of wastes will also increase and it is, therefore, obligatory on our part to concentrate on finding ways and means to utilise these wastes and invent such devices as can provide part time employment to the millions of our countrymen living in rural as well as urban areas.

Amongst the industries based on minor forest products, the most important is the rosin and turpentine industry which provides the most striking example of a forest industry that has developed practically out of nothing to an industry capable of paying lakhs of rupees annually to the Forest Department. The tapping of chir yields resin, out of which rosin and turpentine are recovered by the process of fractional distillation. The first plant of turpentine distillation was set up in 1907 and the production then was about 6,609 mds. of rosin and 16,086 gallons of turpentine. In 10 years the quantity of rosin and turpentine manufactured reached to 60,938 mds and 1,36.052 gallons respectively. At present turpentine is exported and Bareilly factory is just loaded with huge export orders. It has been estimated that the maximum output of naval stores from the Indian forests can be expected at 6,00,000 maunds of rosin and 1,850,000 gallons of turpentine.

Lac and shellac industry has almost been the monopoly of India from very early times. In 1938-39 about 48,000 tons of lac was India's output which rose to about 60,000 tons in 1948-49. The total exports of lac in 1945-46 were 21.709 tons. Since then the production as well

as exports have tremendously increased. There are about 5000 Bhattas engaged in the production of lac in India of which 75% are in Bihar. Their production is about 10,000 tons of seed lac and 24,000 tons of shellac and button lac. The potentiality of this industry also is to be increased by adopting scientific methods of lac propagation in our forests, and the Nankum Lac Research Institute is playing the leading role in this direction.

The future needs for the development of forest industries are :—

(i) The establishment of **integrated industrial centres** to minimise waste and utilise the waste of one industry as raw material for another.

(ii) **The industrial utilisation of** such species which hitherto have been counted as Secondary or uneconomic because out of a total of about 2,500 species which Indian forests possess only about 400 species are actually utilized.

(iii) **The introduction of some wood-or bamboo-based industries** like pencil making, turnery, paper and pulp making by hand, match making by hand, polished bamboo suitcases and treated bamboo boxes and furniture, etc. into the community project centres as cottage industries to provide work and side income to the villagers in their leisure time.

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**R. L. AGRAWAL**, B. Sc.
*(1956–58 Rangers Course)*

**Summary:** *Though it is often pointed out that fungi are harmful or destructive in nature, it is not always the case. Experience and research have proved that nothing is worthless in nature. Proper scientific study of fungi have shown its great economic uses, and now they are used in various industrial processes, as in the manufacture of fumaric, lactic, and succinic acids, alcohols, etc. Some af them are of great medicinal importance, e.g., penicillin. Edible fungi are rich in nitrogenous matter and fats. Genetical studies have been considerably facilitated by fungi.—Ed.*

We are often told that fungi are destructive to timber, food stuffs, etc. and that various diseases of animals and plants are only due to fungi. Usually, in every branch of forestry, whether it is silviculture, utilization or protection, fungi figure as an adverse factor. In utilization we find that fungi like *Merulius lachrymans* and *Poria vaporaria* are the cause of dry rot of timbers. In silviculture we are told that open wounds of trees after pruning or stools after felling are susceptible to disease by fungal infection. It is a regular complaint from students that their botanical specimens are spoiled by fungus attack. The spoiling effect of moulds that grow on jam and cheese, rust that reddens the wheat crop, or smut that destroys the grain is well known. They destroy food, fabrics, leather, etc. Majority of plant diseases and many diseases of animals have made us familiar with its destructive nature. No wonder that we commonly consider them as destructive agents.

There is good in evil. The atomic energy which was held in horror when, in the form of the atom bomb, it devastated the flourishing cities, Nagasaki and Hiroshima, is now being diverted for beneficial purposes. Same is the case with fungi. Scientific research is bringing to light every day many ways in which fungi can be used for the welfare of living beings. Many are the products obtained from fungi. Some of these are given below,

**Phycomycetes.** *Rhizopus nigricans* is used commercially for the manufacture of fumaric acid. *Rhizopus orizae* is capable of producing alcohols. Various species of *Rhizopus* are capable of forming large quantities of lactic acid, citric acid, succinic acid, oxalic acid, etc.

**Ascomycetes** are of great importance economically for us, *Monascus barkeri* is used by the Chinese for the manufacture of an alcoholic liquor known as *samsu.* A striking feature of *Saccharomycetes,* commonly known as yeasts, which gives them considerable economic importance, is the power to produce alcoholic fermentation in solutions of suitable sugars. The reaction depends on the presence of the enzyme Zymase and is known as alcoholic fermentation. In its least complex form it may be represented by the equation: $C_6H_{12}O_6 = 2C^2 H^6O + 2CO_2$ Zymase is secreted by the cells. Under aerobic conditions yeast grows and multiplies rapidly, little alcohol is formed and the sugar is used as food. With restricted oxygen supply, the main part of the sugar metabolized is used in anaerobic respirarion and the quantity of alcohol produced is greater. So, by regulating the supply of oxygen, the process is controlled so as to favour the formation of more and more alcohol from the waste products of sugar industry known as molasses.

A number of yeasts are utilized economically both in baking, where their value depends on the formation of carbon-di-oxide causing the bread to 'rise', and in the brewing and other processes for the production of alcohol.

The most important antibiotic which has initiated an era of great achievemcnt in medicine and surgery is penicillin. It is produced by Ascomycetous fungi, *Penicillium notatum* and *Penicillium crysogenum.*

Members of *Hypocreales,* such as *Cordyceps sinensis,* arec elebrated drugs in the Chinese pharmacopoeia. Other members such as *Claviceps* parasitic on members of Graminae are almost cosmopolitan. *Claviceps purpurea,* the ergot on rye and other grasses, is well known all over the world. The sclerotia (fruit bodies) are well supplied with reserve materials including fats and proteins and contain a number of alkaloids, one of which, ergometrine, causes rapid contraction of the uterus.

This fact explains the former use of the sclerotia to hasten child birth, and their present employment to control haemorrhage after delivery. Two other alkaloids, ergotoxine and ergotimine, have an action similar to that of ergometrine, but produce a slower though more prolonged response. When eaten by cows or sheep the sclerotia are liable to cause abortion. The prevalence of abortion among cattle in certain areas is probably due to this cause.

**Fleshy fungi** have long heen employed for food. (Some, however, are deadly poisonous. e. g., *Amanita phelloides*, traces of which may be lethal in effect. So, be careful in selecting them !).

**Tuberales.** Tuberales are truffles, some of which are used as food in Europe. They are characteristically subterranean, though some species are imperfectly buried and others grow among decaying leaves. When mature the fruit emits a powerful odour, by which rodents are apprised of their presence. Ascocarps (fruit body) of many species of tubers are edible. and are known as truffles, the most esteemed being *Tuber melanosporum*. With the help of trained dogs and pigs, which detect the odour of truffles and dig them, people gather and sell them in the market. Truffles occur in chestnut. oak and beech and form mycorrhiza with roots of these trees.

Many **Basidiomycetes** are eagerly sought for food by mushroom lovers the world over. Fleshy species greatly used as food are: *Agaricus compestris, Boletun edules, Coprinus comatus, Pleurotus ostrealus* and *Fistulina hepatica*. Other highly priced morels are: *Morchella hesculenta, Morchella conica, Dyromitra gygas, Tuber aesticum, Morchella hybrida, Morchella delliciosa*, etc. The fleshy fruit bodies occur naturally in the forest, but cultivation of mushrooms for food has developed into an industry of considerable proportion in the United States and is continually growing, although only one species of mushrooms, *Agaricus compestris*, is being cultivated for food. Mushrooms have nitrogenous substances, carbohydrates and fats that give them nutritive value as fresh vegetables.

Many fungi are used in the preparations of vitamins.

Indirectly fungi are doing much good to humanity in nature; they increase the fertility of soil by inducing various changes, which eventually result in the release of plant nutrients in a form available to green plants.

Genetists and biochemists have discovered that fungi can be utilized as important research tools in the study of fundamental biolog cal processes, because of the rapidity with which some fungi grow and reproduce and the little space and equipment they require as compared with most higher plants.

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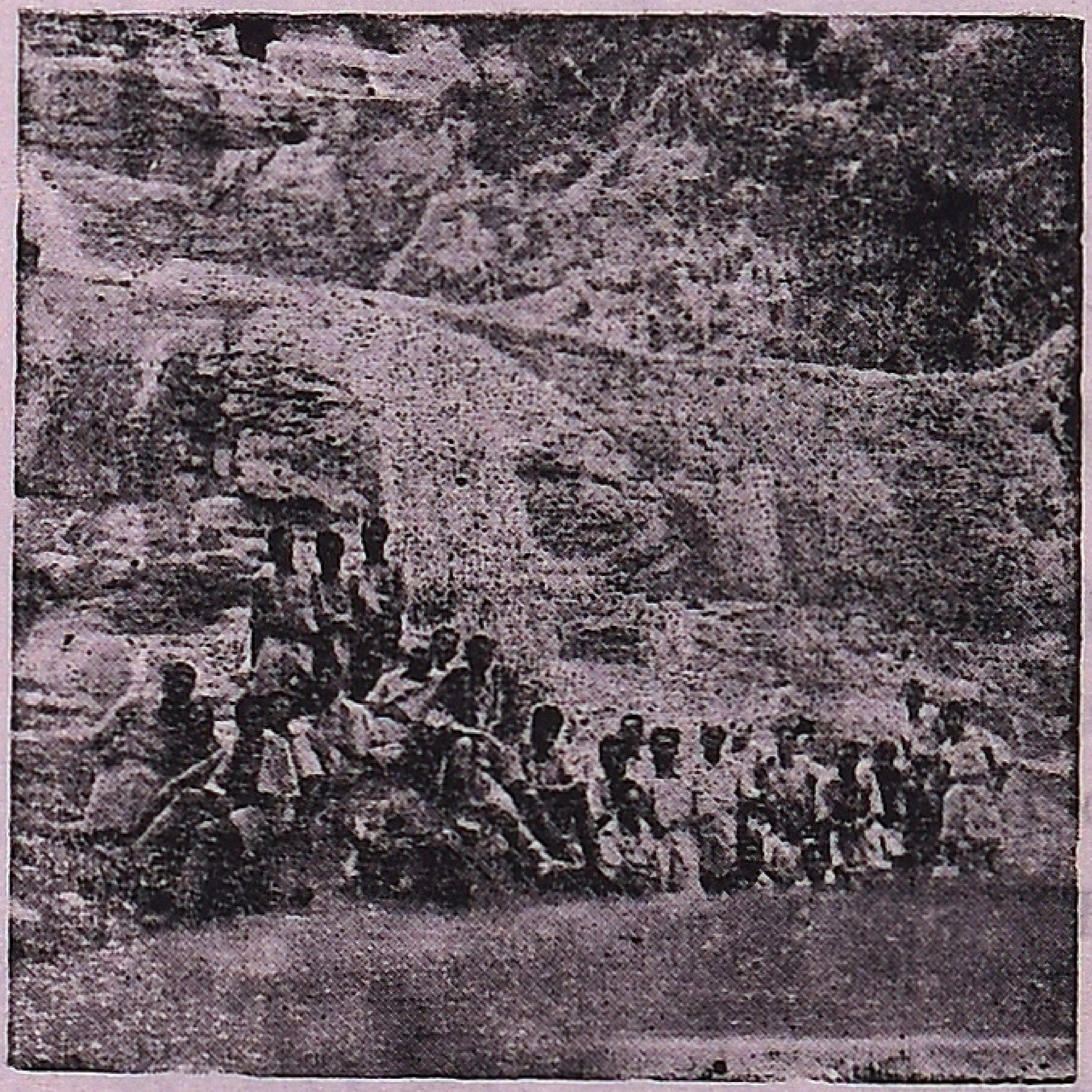

Class at Silver Cascade, Kodaikanal.

*Photo by: Shri P. T. Joseph.*

Lac harvesting in Vannathipara Lac Farm, Cumbum valley.

*Photo by: Shri H. S. Willie.*

# Rubaiyat Retold

*( With apologies to good old Omar Khayyam )*

S. RAMALINGAM, B. Sc.
*(1956—58 Rangers Course)*

Awake! O Partner! for the sun, who scattered into flight
The stars before him from the field of night,
Drives the slumber away from us and bites
The College tower with his jaws of light.

And as the gong strikes, Joseph, who stands before
Our chamber, shouts, "Open the door!".
"You know how much we have to prepare,
And leave this room, to avoid a later snare!"

Now the new day reviving old desires,
The thoughtful soul to solitude retires,
But the Havildar's hand is fast on his whistle
And his lips putter to keep down a harmless bustle,

"Come, fill the glass, Oh! Shanker of Iyer's House,
For there is little time, out of this heap a 'Thosa' to choose;
The Bird of Time has but a little way
To flutter - and the Bird is on the sky of To-day."

Here in the recess, with a cup of coffee cold,
And a fag to smoke—and this cabinet old
Beside me, droning in the common-room—
Now sure, this room is paradise cheaply sold !

I sometimes feel that it never grows so big
A seedling wherev'r a Forester student had to dig!
That every Eucalyptus that the estate bears
Was planted in her bosom by the toils of a Ranger's aching rib!

And we that make merry after a dinner in this room
Our seniors left to plunge us for a while in gloom,
Ourselves must part from this chamher
To make place for—I don't know whom!

Ah! make the most of what we yet may spend
Before we too into the folds of tradition descend;
Tradition upon tradition and over a tradition, to be
Sans tea, sans smoke, sans song and—sans end.

Alike for those who to-day impress
And those that over a yesterday re-dress,
A veteran from the back door cries,
"Fools! your reward is neither here nor there under your boss's stress

"Why, all the mettled and the master graduates who discuss'd
Of the results so learnedly are thrust
Like foolish Prophets forth, their words to scorn,
And scattered amidst the lower ranks and not the first".

Myself, when afresh, did eagerly frequent
Museum, library and seniors to hear great argument
About it and about, but evermore
Came out by the same door - as in I went!

Up from a corner of the country, thro' the Andaman State,
I came and in the Rangers' classes sate;
And many a knot I unravelled by the road,
But not the master knot of an Honours Certificate!

That was a Doom to which I found no key,
That was a Veil thro' which I couldn't see,
Some little talk awhile of Majority and State
There was — and then no more was heard of them nor me.

When Captains and Secretaries behind the veil are past,
Oh! but the long, long while the College shall last,
Who of our coming and departure heeds?—
Just as the sea's self should heed a pebble cast!

How long, how long in infinite pursuit
Of this and that, endeavour and dispute?
Better be merry, as our kind House-tutor says,
Amidst the culture diverse and friendship to suit,

Oh! threat of 'Lower' with hope of 'Higher' ties;
One thing at least is certain — College life flies;
One more thing is certain and the rest is lies:
Our officers are kinder than what they hold in disguise!

Strange - is it not? - that of the myriads who
Before us pass'd the door of Exams through,
Not one returns to tell us of the road,
Which to discover we must travel too!

But helpless pieces of the Game our Doctor slays
Upon this chequer-board of passes and 'Nays',
Hither and thither moves and checks and plays,
And one by one upon the list of 'Highers' lays.

The correcting examiner writes and having writ
Moves on; nor all your piety nor wit
Shall lure him forth to add half a mark,
Nor all your tears wash out a remark from it!

Ah! Partner, could you and I with the College conspire
To grasp this sorry scheme of things entire!
Would we not shatter it to bits and then
Re-mould it nearer to our hearts desire!

**Kuza Nama**

Listen again: One morning at the close
Of the Convocation, ere the better sun arose,
In that upstair assembly hall, I stood with others,
With the outgoing population around in rows.

And once again there gathered a scarce heard
Whisper among them: as it were the stirred
Ashes of some all but extinguished Tongue,
Which mine ears kindled into living Word.

Students of different States and sizes, great and small,
They stood along the floor and by the wall;
And some loquacious follows were, and some
Listened, perhaps, but never talked at all,

Then said one, "Surely not in vain
Was my substance from the common levels taken;
Now He who subtly wrought me into shape
Will never stamp me back to common stuff again."

Another said, "Why? Never a peevish Boy
Would break the bowl in which knowledge he stored in joy.
Will the Staff that made a Ranger of me, in pure love
And duty, in an after-rage destroy?".

# "My Darling"

*( A Panegyric on a Bill-Hook!—Ed.)*

M. C. PRAJAPATI, B. Sc.
(1956—58 Rangers Course)

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**Summary:** *Absence makes us realize the importance of a thing. So long as it is with us we may think of it as minor or negligible, but soon after its separation from us, we come to know that it had acquired an important corner in our heart, had become a part and parcel of our life and had played a most important role in regulating it. The author came to realize this only that day when his darling, his bill-hook, left him just for a while!—Ed.*

Darling! you came into my life like an oasis in the desert, a cool, fragrant, congenial breeze in a summer morn, a shower in dry land, a beam of light in the darkness or, say, resurrection following death. You made me realize the loneliness of the world, the beauty of nature. the sacredness of the air and the solidity of the earth.

Actually, I was fed up with myself because of the loneliness, When I came here and met a gathering of students representing the whole of India and Ceylon, I was elated. All of them were new to me, with different modes of living, speaking, dressing and demeanour. I wanted to move intimately with them, but could not, I then wanted to go my way, but that they would not allow. They troubled me perpetually. What to do? I voiced desperately, kept aloof and tried to forget myself in egocentric musings, but this gave them another new way of troubling me. They rather taunted me very ironically—"HALLO SIR ...! you don't seem to be feeling well now-a-days. Are you home-sick?" Said one: — "SSSH ...! don't disturb him. Let him complete his thesis!". Interruped another gesticulating: "Yes — Yes! you are right", supported the third man, and turning to me asked, "Is it so Mr Prajapathi that you have found Mr. Einstein's Theory of Relativity wrong?",—"No man ......! None of you could diagnose, can't you see he is suffering from T. B, and it has reached the final stage!" said the fourth man with a shrug and

grimace, I wanted to slap him and as I rushed towards him, another voice from a corner came—" No, Mr. Prajapati ! which fool called you a T. B. patient ? I say you are the Sandow of our College. Who has got muscles like yours ? " And next moment I found myself amidst loud, wild laughter and smirk. I felt nervous and left the spot.

This became a daily routine. Their buffoonery and bullying made my life difficult. I concluded that it was impossible for me to make them my friends.

My worries, sorrows, grievances, galls and troubles went on day after day. The taunts multiplied I had no interest in P. T., no interest in games, no interest in studies and no interest in meals. As a result, I felt dull and dejected. I pined away and became a seleton. I too wondered whether I was a T. B. patient !

As on many a day before, I went to the College stores one day and stood near the window waiting for my turn. Sad and silent, I turned my face towards the window, and found my eyes caught by a pretty cresent of glittering and glamorous beauty! I was wonder-struck, I forgot myself. I had never seen such a fair one before. I went on looking at it. Do you know who it was? It was you, darling; you, the queen of my dreams! Do you remember, darling, you too looked at me? I responded and you blushed. I was over-filled with joy, I was thrilled—who won't be ? — by seeing a sweet and charming siren like you with a ready smile. Your bewitching smile and picturesque beauty hypnotised me. I felt myself transported to the Seventh Heaven........ It was a turning point in my life,

"What, Prajapati ! Are you day-dreaming?" The store keeper asked.

"M.........M.........No, please",

"Then please sign here".

"Yes".

I signed the paper and looked at you, We exchanged smiles and compliments liberally and went to the room happily. It was the happiest day in my life. Wasn't it, darling?

You brought me fortune. All those who taunted me became my friends. I found my talent sharp and body full of energy. Impossible things became possible for me. All these magic changes - May God bless you, darling ! - were due to you.

That evening, I was not feeling well. You advised me to take rest, but I preferred a walk. Against my repeated entreaties you accompanied me. The cool of the night, the quiet dark avenue, the young peeping moon and innumerable stars studding the sky like so many jewels, under which we two sitting on a culvert, gave me my good God – ! – heavenly pleasure. How beautiful you were looking that moment ! I closed my eyes and had a picture of you in the mind. I found you had in you the "rotundity of the moon, the curves of the creepers, the slenderness of the reed, the bloom of flowers, the lightness of leaves, the tapering of elephant trunk, the glances of deer, the clustering of rows of bees, the gaiety of sun-beams, the softness of the parrot's bosom, the hardness of adamant, the sweetness of honey, the cruelty of tiger, the warm glow of fire, the coldness of snow, the chattering of jays, the cooing of Kokila and the fidelity of the Chakravaka !"

When my mind was wandering in this realm of thoughts you slid up closer to me. I patted you. You whispered something. I did not listen. You got angry and warned me against a danger about to come next moment, but I did not heed : I was still thinking of you with my eyes closed. Next moment you pushed me to one side and rushed to something like an arrow from a bow. I opened my eyes and saw a poisonous cobra, cut into two pieces, vainly struggling for life.

"Cobra.........! My God !" I was shivering out of fear. Your alertness and swiftness gave me a new life You fulfilled the duties of a dutiful friend and of a true life companion. It gave me overwhelming pleasure. I took you to my heart, and how many times I kissed you, darling, I don't know ! Then we went to the room.

The days passed very happily but rapidly. We went on tour. How difficult it is to get an access through the dense thorny forests ! One day when our Instructor asked me to bring a specimen of a species

surrounded by very densely grown *Lantana* and *Zizyphus*, I found myself in trouble, but you came forward and cleared a clean, two feet wide path within a moment. Not only this, you jumped on the species and brought the specimen also. All these things happened within no time. Every one was wonder-struck. They appreciated my smartness, and I thanked you. Similarly, next day when we went for elite thinning in 1941 teak plantation at Sadivayal, we were to cut a number of trees. The felling work was given to me. From 9 O'clock in the morning till 3 O'clock in the evening I went on working without a minute's rest. Everyone appreciated my work.

"Prajapati has got a lot of stamina", one said.

"He does not seem to feel tired", another exclaimed.

"He is a very hardworker", and so on.

Then our Officer-in-charge, Mr. Nair, stepped forward and pattingly said, "Well done Prajapati, stop now, you must be tired".

But, it was not I who worked hard that day, but you. It was your inspiration which made me work hard along with you.

Darling! There is no end to your good qualities. If I go on describing like this it will become a big volume. How can I deny that you brought me good name, fame, prosperity, stability and peace in life?

* * * * *

One day at Markanam after a whole day excursion I was very tired. I could take neither water nor the lunch I had with me. In the evening at 5 O'clock we were asked to take our lunch. You would not see me suffering from thirst and hunger. You went to a coconut tree and brought a tender coconut for me. Under the air-conditioned shade of a casuarina tree, with my field note book, my lunch and the coconut beside me, I felt heavenly felicity, and began to sing –

"Here with a Loaf of Bread beneath the Bough,
A Flask of Wine, A Book of Verse, and Thou
Beside me singing in the Wilderness,
Oh! Wilderness is Paradise enow."

* * * * *

Darling, I like you more than my life. I can sacrifice my life but not you. We are two by body but one by soul. Even the Paradise is worse than Hell for me without you and Hell is better than Paradise if you are with me.

Yesterday, in the Tireman's Hopea plantation at Parappa, when I did not find you with me, I was terribly shocked. I searched for you everywhere, but all in vain. I enquired of all the students, but without result. I could not concentrate on the topographical survey. Hence I took leave and went to the tent. I lay on the cot and wept for hours together. I took no bath, no drink, no meals and nothing at all. I could not sleep, either; throughout the day and night I thought of you only. To-day in the morning when my tent mate asked me to get up, I did so. I went to the back of the tent to fetch tooth-paste and brush. Under the tent flap I saw the corner of a glittering thing. Anxiously I pushed the flap to one side and found you lying there. At first I could not believe it was you. I thought I was dreaming. I touched you and got confirmed that it was you. By this our re-union, I was over-whelmed with joy.

You see, darling, how, within these twenty-four hours of our parting, I have pined away.

My darling BILL HOOK! Tell me what made you take this step that endangered my very life. Forgive me my faults and promise that you won't do it again.

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# Use Of Predriers In Lumber Yard Reduces Inventory Trim Loss, Sticker Stain, And Drying Time

"Digested from the December 1955 Issue of THE TIMBERMAN. Copyright 1955 by The Timberman; further reproduction is prohibited."

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After the installation of predriers as a substitute for yard seasoning in the plant of the Warm Springs Redwood Company, Willits, California, the general manager reports that less inventory is required trim loss is less, costs are no more than for air drying and sticker stain has been reduced.

The predriers have 16 compartments in pairs with openings on opposite sides, as shown in Figure 1 on the accompanying Illustration. They are side loaded with lift trucks, and each compartment holds 16 units of lumber per charge

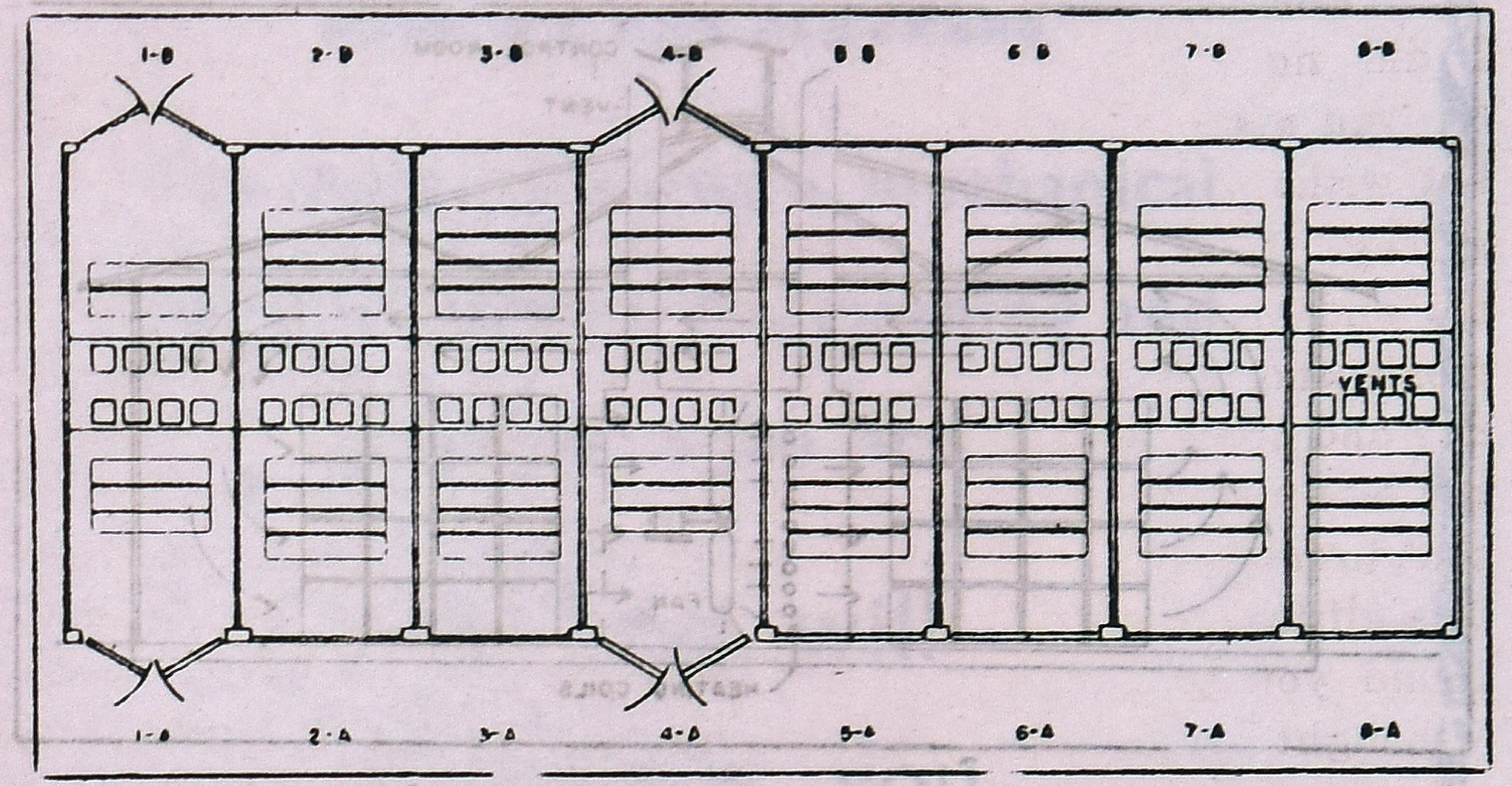


Fig. 1. The above sketch shows the construction and arrangement of the predriers having 16 compartments in pairs with openings on opposite sides.

Single wall construction was used, except on the ends of the building, which are double-thickness 2- by 6- inch lumber with an inner layer of paper. The wood-framed structure has 2- by 6- inch fir stock on the roof, which is covered with paper and coated with tar.

Two 7½- horsepower electric motors operate two 7-foot fans at 350 rpm (revolutions per minute) for each pair of compartments. The air circulation which is 400 lineal feet per minute is reversed every four hours by means of automatic controls. About 20 percent more volume of air is moved between the lumber courses in the predriers than in the dry kilns. The eight vents for each pair of compartments are constantly left slightly open.

Heating coils are located with the fans in the central chamber between the compartments in each pair. (See Fig. 2.) Only excess steam from the boilers at the rate of 15 psi (pounds per square inch) is

used. When the pressure drops below 10 psi, the line to the predriers automatically shuts off. The temperature, controlled and recorded by a precision instrument, averages about 96 degrees F.; the wet bulb depression is from 10 to 30 degrees.

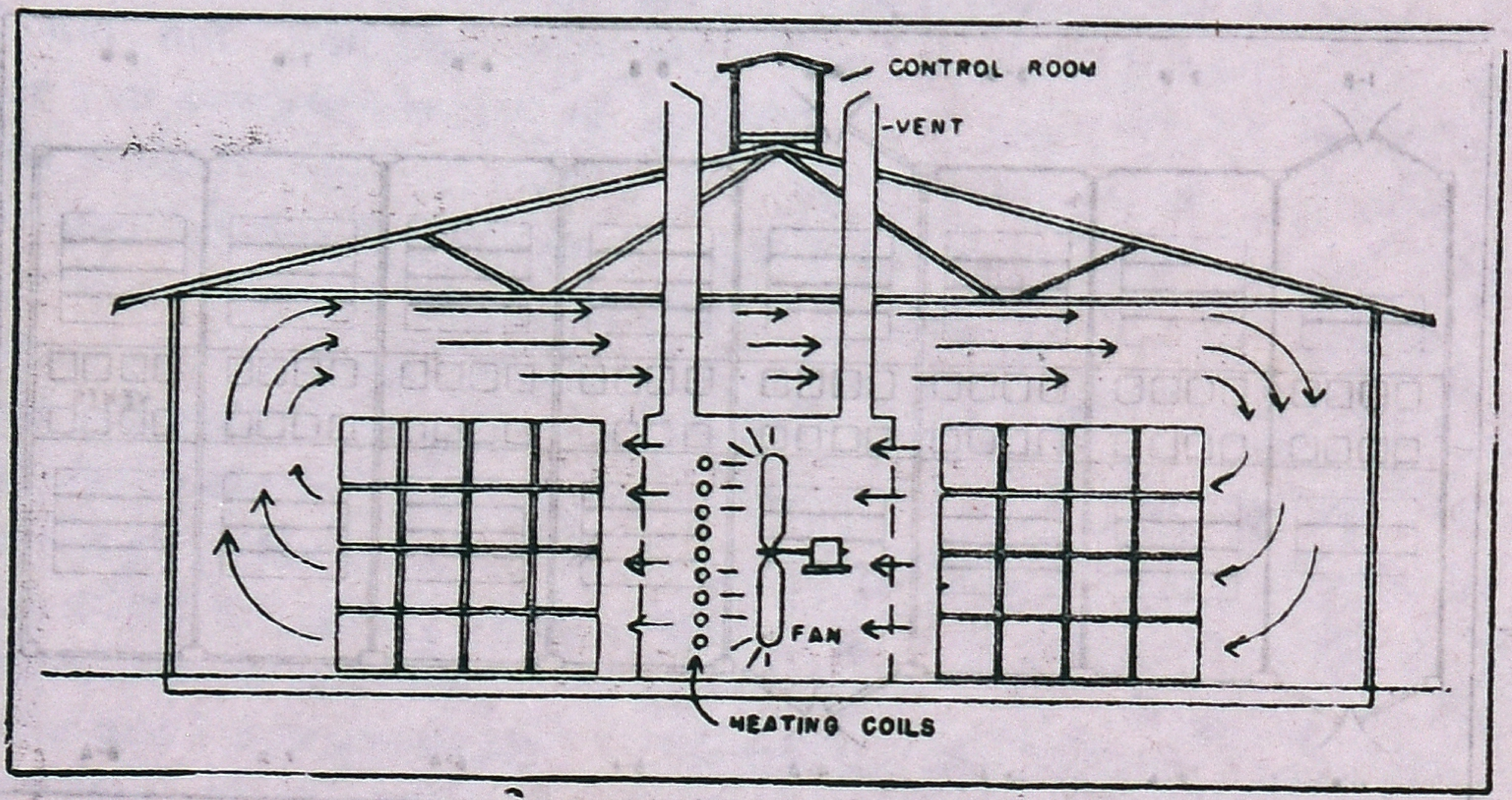


Fig. 2. This sketch shows the location of the fan, heating coils, control room, and vent housed in the single wall structure.

Heavy lumber, which ordinarily dried in the yard requires from three to six months before going into the dry kilns, has its moisture content reduced to 40 percent in three weeks in the predriers.

When the moisture content of the lumber reaches 40 percent, the stock is moved to the dry kilns for final seasoning. Drying is faster in the predriers in the early stages than in the dry kilns because of the greater rate of air circulation in the former.

Before installing predriers in this plant, about 10 percent of the volume of lumber was lost in end trimming checks when the stock was air dried. Therefore, in planning any lumber drying operation, it would be advisable to consider the use of predriers as a substitute for yard seasoning.

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**Cover Photo:**

The Governor of Kerala inspecting the Guard of Honour presented by the Students.

—Photo by Shri T. R. S.

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